IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

ALIGN TECHNOLOGY, INC. *
*
VS. *
*
CLEARCORRECT OPERATING, *
LLC, ET AL. *

June 22, 2026

CIVIL ACTION NO. 6:24-CV-187

BEFORE THE HONORABLE ALAN D ALBRIGHT
JURY TRIAL PROCEEDINGS
Volume 1 of 7

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ALIGN – EXHIBIT 2041
ClearCorrect Operating, LLC. v. Align Technology, Inc. IPR2025-00819

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08:09

09:01 (Hearing begins.)

09:01 THE BAILIFF: All rise.

09:01 THE COURT: Good morning, everyone. You may be seated. Thank you.

09:01 My understanding is we have a couple of --

09:01 Oh, I'm sorry. Jen, will you call the case.

09:01 DEPUTY CLERK: A civil action in Case 6:24-CV-187, Align Technology, Incorporated, versus ClearCorrect Operating, LLC, et al. Case called for a jury trial proceeding.

09:01 THE COURT: Why don't we go ahead and have each side announce everyone who is going to be at your table, and then when I bring the jury in -- there's something -- let's go ahead and I'll have them do it then. We don't need to do that now. I don't think you have to do it twice on the record. So that way everyone can kind of stand up when you introduce yourself when the jury comes in.

09:02 So, Mr. Durst, is there anything for the plaintiff?

09:02 MR. DURST: Your Honor, we are ready to proceed.

09:02 THE COURT: Okay. And for defendant?

09:02 MR. MUELLER: Two quick things, Your Honor.

09:02 THE COURT: Sure.

09:02 MR. MUELLER: Good morning, Your Honor. Joe Mueller on behalf of the defendants. Just two quick things.

09:02 First, we would just respectfully request, as in our other trials with Your Honor, a running objection with respect to pretrial motions that we lodged for the Daubert motions, for example, but we understand those to be definitive rulings. And we would just respectfully request a running objection for the motions that we lost before trial.

09:02 THE COURT: Sure.

09:02 MR. MUELLER: And the second and final thing, Your Honor, with respect to the description of Straumann, the Straumann companies, the defendants, Your Honor granted a motion in limine precluding discussion of the details of the dental implant business which is not relevant to this case.

09:02 I would just note that because we have no objection to the plaintiff saying that Straumann sells products, including dental implants. That happened in jury selection. We have no objection to that. We just want to make sure that doesn't open the door to what

Your Honor precluded on the marketing practices and so on, the dental implants, which have nothing to do with the case.

So I just wanted to note that we don't object to just the simple statement that Straumann sells products, including dental implants, provided it doesn't open the door.

THE COURT: Yes, ma'am.

MS. DURIE: Thank you, Your Honor.

I presume that the request will go both directions with respect to --

THE COURT: No. I'm only going to do it one -- I'm kidding. Yes. That's the -- of course.

MS. DURIE: Completely understood, Your Honor. With respect to Straumann, all I intend to say is that they are in the dental implants --

MR. MUELLER: And that's fine, Your Honor.

THE COURT: And if I can have each of you -- just you two come up to the bench for a second.

(Bench conference.)

THE COURT: So it's not just you two because it's here. But I didn't want to say this out loud.

While I was on my trip to Brazil, I

ruptured my eardrum, right ear. I can't hear out of my right ear. So it's -- I just wanted -- and you are welcome to -- it's just if I turn my head when you're up here, that's why.

And also, it has caught my -- when I was in court last week, it's causing me some problems when I talk, doing things.

I think I'm fine, but I wanted you to know, and you can certainly let everyone on the team know. But also, because the witness is to my right, so I'm -- ordinarily if I can't hear something, I worry that it's not audible, I'm just going to -- it's up to you all listening to hear whether or not you think the jury can hear because I -- ordinarily I can actually hear the person, but I won't be able to do that. But I just wanted you all to know if I act odd at all, why I'm -- it will be I'm trying to hear. I can hear you out of my left ear.

MR. MUELLER: I'm sorry to hear that.

MS. DURIE: Thank you.

THE COURT: So I'm going to line the jury up.

MS. DURIE: Yes.

(Bench conference concludes.)

THE BAILIFF: All rise.

09:10 THE COURT: Please remain standing for the jury.

09:10 (Jury entered the courtroom.)

09:10 THE COURT: Thank you. You may be seated.

09:11 Jen, will you call the case, please?

09:11 DEPUTY CLERK: A civil action in Case 6:24-CV-187, Align Technology, Incorporated, versus ClearCorrect Operating, LLC. Case called for a jury trial proceeding.

09:11 THE COURT: Counsel, are you prepared to go forward?

09:11 MS. DURIE: We are, Your Honor.

09:11 THE COURT: Would you do me the -- Mr. Mueller, I assume so?

09:11 MR. MUELLER: Yes, Your Honor.

09:11 THE COURT: Would you do me the favor of introducing -- reintroducing your trial team, the folks who are going be standing up in front of the jury to the jury, and we will get started.

09:11 MS. DURIE: Of course, Your Honor.

09:11 Thank you very much, and good morning, everyone. My name is Daralyn Durie. I represent the plaintiff in this case, Align Technology.

09:11 And I'd like to introduce my colleagues

to you: Michael Tubach, Tim Durst, Brian Nash, Rich Hung, as well as from Align Technology, Avi Kopelman and Dr. Chunhua Li.

Thank you.

THE COURT: Mr. Mueller?

MR. MUELLER: Good morning, ladies and gentlemen. It's nice to see you again.

Let me reintroduce myself and my colleagues. My name is Joe Mueller, and with me are Todd Zubler, Vinita Ferrera, Travis Underwood, Jordan Hirsch, and these are the folks who will be, along with me, examining some of the witnesses in the case. We also have with us as our corporate representative Ms. Laura Sterling.

Thank you, Your Honor.

THE COURT: You bet.

Ladies and gentlemen of the jury, the first stage in a jury trial is the opening argument. The opening argument I like to think of as a roadmap or a blueprint for what the lawyers believe they're going to be able --

And, Mr. Mueller, are you going to do your opening immediately after theirs?

MR. MUELLER: Yes. I am, Your Honor.

THE COURT: Okay.

I like to think of it as just a roadmap for you all. And it's important but it's also important for you to understand that it is not evidence in this case. The evidence in this case will not begin until the plaintiff calls their first witness and that first witness is sworn.

At the end of the trial, I'm going to instruct you that you can only consider the evidence when you are deliberating. So, again, while what the counsel are about to tell you is important and hopefully entertaining, it is not to be considered by you when you begin your deliberations.

With that being said, counsel, would you like any warning?

MS. DURIE: If I could have a five-minute warning, Your Honor.

THE COURT: So 40 and 5?

MS. DURIE: Yes.

THE COURT: Okay. I'd be happy to do that.

OPENING STATEMENT ON BEHALF OF THE PLAINTIFF

MS. DURIE: Thank you.

And again, good morning. This case is about a company that earned its place in the market through almost three decades of hard work, of

trial-and-error experimentation, of innovation, and of investment. That company is the plaintiff in this case, my client, Align Technology.

Before Align, orthodontics involved goop. Some of you may remember this. It involved metal braces and metal palate expanders. Today it's a whole new world. We have digital scanners to take a digital impression. And we can move teeth with these custom-made clear aligners. We're here in court today to protect the years and years of work and investment that led to these innovations.

We're here because another company came into the market late, started off behind, and fell further behind and took a shortcut and used our proprietary technology, technology on which we were awarded patents by the United States government. That company is the defendant in this case, Straumann.

Straumann is a company based in Switzerland that sells, among other products, dental implants. They decided they wanted to get in on the business, and they bought a company here to try to compete with Align.

But as I said, they started off behind and they fell further behind. And when they got caught infringing patents, rather than accepting

09:16 responsibility for their actions, they turned around
09:16 and blamed us for the consequences of their own
09:16 actions. And they filed what are called counterclaims,
09:16 accusing Align of being a monopolist, accusing us of
09:16 anticompetitive conduct responsible for their harms.
09:16 But what the evidence is going to show is
09:16 that internally Straumann recognized exactly what was
09:16 going on. Their problems were the result of their own
09:16 decisions, lack of product innovation, aligners that
09:16 often didn't fit right, and poor leadership, what their
09:16 CEO referred to himself as self-inflicted wounds.
09:17 I am enormously proud to represent Align
09:17 Technology in this case. And one of the reasons that I
09:17 am so proud is because Align has truly transformed the
09:17 provision of dental care.
09:17 You're going to hear early in this case
09:17 from two orthodontists, Dr. Mitra Derakhshan and
09:17 Dr. Maureen Valley. And part of what they're going to
09:17 talk to you about is the importance of oral health and
09:17 the way in which Align and Invisalign have transformed
09:17 oral health. Because to be sure, it's partly about
09:17 aesthetics, and it's partly about confidence that comes
09:17 from having a smile that you're proud of.
09:17 But it also matters to your oral health,
09:18 to your ability to brush your teeth, floss. It

prevents gum disease. It can help avoid tooth loss. And we are learning more and more about how oral health is critically important to overall health, to gut health, even to brain health.

So these innovations have made a huge difference in terms of access to oral healthcare and health outcomes.

Now, I said this is a patent case. And this case is about five patents that we were awarded by the United States government for our inventions. Four of these patents involve the material that is used to make these clear plastic aligners, and Dr. Li is the lead inventor on those patents.

The other patent involves technology in this scanner, this intraoral scanner. And the lead inventor on that patent is Dr. Avi Kopelman.

Now, I'm going to talk to you this morning about why it is that Straumann infringes on our patents, on our intellectual property.

Now, Straumann denies that they infringe. They're going to tell you that they don't use our inventions. But I think they're also going to say even if we do, the patents are invalid. They're no good. And so I'm going to touch briefly on that as well.

And finally, I'm going to respond to this

allegation that we did anything wrong by virtue of our fair competition with Straumann.

But before we get into the details of infringement, I want to take a step back and I want to talk a little bit about how it is that we got here.

So Align was founded back in 1997 by two college friends who had this remarkable new idea that instead of braces, maybe they could use clear plastic aligners that were custom 3D printed. This was in the very early days of 3D printing technology in 1997. Custom 3D printed for every individual.

Now, this required a ton of change in how you thought about orthodontics because rather than going back to the orthodontist every few weeks and having them fiddle with the wires, you had to plan out the whole course of treatment and then make this set of custom aligners that you would wear for a week or two, then put in the next one, then put in the next one, and take you through your whole treatment journey.

In 1998, the company had about 25 employees. This is a picture from the very early days. And they were working on this technology and on trying to bring all of this together. And in 1999, Align came out with Invisalign, which was the first-ever clear aligner to use to straighten teeth.

09:21 Now, since then, there have been a whole series of innovations, new materials that have been used in the aligner itself. In 2006, this digital scanner first came onto the market.

In 2008, Align came out with a product for teenagers so that teenagers, especially, for example, who were playing sports, where having metal in your mouth was a problem, would have access to clear aligner technology too.

They came out with new ways to apply force to the teeth to be able to move them in the bone. They started doing clinical studies with respect to new materials. They came out with an outcome simulator so that you could see what the treatment was going to look like and how your teeth would look at the conclusion of that treatment.

They came out with new material. We're going to talk more about that.

New scanners. New scanners that could not only scan your teeth, but with respect to this, check for cavities at the same time and see cavities without the need necessarily to get x-rays.

They came out with a virtual care device so that rather than having to go back to the orthodontist, you could use your phone to take a

picture of your mouth and your doctor could see it remotely. Super helpful if you're in a rural area, for example, and it's hard to get to the orthodontist.

A palate expander system for kids whose mouths need to be made larger.

And new scanners and yet more scanners. A continuous history over almost 30 years of product innovation.

This kind of innovation does not come cheap. Just since 2017, Align has spent 2.2 -- whoops -- billion dollars on investments.

Can you check? We're losing the color on the slides.

Do you know? I apologize, Your Honor.

THE COURT: No problem.

(Off-the-record discussion.)

MS. DURIE: May I approach the screen, Your Honor, just for one sec?

THE COURT: Sure, of course.

(Off-the-record discussion.)

MS. DURIE: That's not very legible, but if it were legible, what it would say is that in addition to that $2.2 billion in R&D, in research and development and lab work since 2017, Align has also spent $1.4 billion in education and in marketing.

The reason that education is so important is because this is new for a lot of doctors, and Align spends a lot of time and effort teaching doctors about this technology, helping them with their practices to modernize and digitize them, and doing direct outreach to patients so that patients know that this is an available option.

Now, you don't have to take my word for how important and how innovative this is. This is Dr. Bryan Taylor. Now, he has a practice here in town called Brazos Braces, and he was actually hired by the defendant Straumann in this case.

And what he says on his website, he says: Invisalign info. There's never been a better time to straighten your teeth with the most advanced clear aligner in the world. Our office is proud to be a certified provider of Invisalign clear aligners, which give you a clear, convenient, and comfortable option to achieve the smile you've always wanted.

Now, it's not surprising that when you have a company that has been as successful as Align has been, a lot of other folks are going to want in on the action. And that is exactly what has happened. A huge number of other companies have come onto the market also offering clear aligner products. One of those

09:26 companies is Straumann.

09:26 Straumann acquired a company called ClearCorrect, that you're going to hear about, as well as a company called Bay Materials. ClearCorrect made aligners. Bay Materials made the material.

09:26 Now, I told you that Invisalign came out in 1999. ClearCorrect came out with a clear aligner in 2006. In 2019, Align came out with SmartTrack. That was a new material for making these clear plastic aligners that was a breakthrough. Before this, these retainers, these aligners, had a tendency to crack and break. It was hard to get the right amount of both stiffness and flexibility.

09:27 Dr. Li and her colleagues spent eight years and tested over 260 materials in order to develop a new material for making these aligners. And that new material was a multi-layer material that had layers of two different plastics.

09:27 One of the plastics was relatively rigid. You're going to hear it was a copolyester. The other plastic was much more flexible. You're going to hear it referred to as TPU, polyurethane, thermoplastic polyurethane. And so you got the advantages both of a material that was relatively rigid and strong and a material that was more flexible that could sustain that

force over a longer period of time.

Now, Bay Materials recognized the importance of this innovation. This is an internal Bay Materials document. The parties produced documents in the course of litigation. And they're reflecting on this.

I apologize, this is hard to read. It wasn't supposed to be. But I'll read it.

It says: Our earlier knowledge (2016) of Invisalign's SmartTrack aligner was built on their MSDS and CAS number disclosures.

That's our data sheets basically for our material.

In the MSDS documents, SmartTrack is identified with multi-layer aromatic thermoplastic polyurethane/copolyester.

That's the same material that is the material in SmartTrack.

And then in 2018, Bay Materials came out with Zendura FLX, which was their multi-layer material. And when we look at what it was made of -- this is from one of their documents -- they describe their multi-layer material, Zendura FLX, as being made of thermoplastic polyurethane, TPU, and copolyester, just like the Align SmartTrack material.

09:29 And they talked about the advantages and the importance of this. This is from a Straumann document. And what they said is: Combining the properties of both flexible and rigid resins in a multi-layered film allows for greater tear resistance, lower initial force, more consistent and longer sustained force, and a more precise fit. All advantages of this multi-layer material with both these hard and soft layers.

09:29 It wasn't just the material. Something similar happened with scanners. We came out with scanners, the iTero. It was initially launched in 2006. There was a new generation in 2015. Straumann then came out with a scanner in 2019. We came out with one in '24. They came out with a newer version shortly thereafter.

09:30 So with that, by way of background, I want to talk to you a little bit about patent infringement and why it is that Straumann infringes.

09:30 And I want to start by talking a little bit about what a patent is because patents are critical to our system of innovation in this country. They're what protect and what stimulate that innovation so much so that they are in Article 1 of the United States Constitution, to promote the progress of science and

09:30 arts by securing to inventors the exclusive right to their inventions.

If you make an invention, if you have an idea, if you do some experimental work, you have a choice. You can choose to keep it secret -- formula for Coca-Cola is one of the classic examples of that kind of secret -- and not file for a patent on it.

Or you have the option to go to the United States Patent Office and make your invention public, add to the sum of human knowledge. And in exchange for that disclosure, you are awarded a patent that gives you the exclusive right to that invention for a period of time.

And I think we are swapping out to get a better set of the slides here.

Thanks. And can you just click on it so I can activate the clicker?

Perfect. Thank you. Sorry about that.

So you can think of a patent as being like a deed to a piece of property. The patent is the thing that defines the boundaries of your property right. So if you're lucky enough to own a house, somewhere at the registrar's office, there's a deed and it specifies where the lot lines are. You can think of a patent as being like the lot lines for your

09:32 invention.

And if we take a look -- I'm just going to skip over that.

If we take a look at the end of the patent, and you'll have copies of these to look at, there is what are called claims. And those claims are what provide those lot lines and define the boundaries of the intellectual property that you own.

So this is Claim 1 of one of the patents that you're going to be asked to consider in the case. This is Claim 1 of the '613 patent.

Can I get -- can I get it, Mr. Smith, so that I can click to the next slide?

So I want to talk a little bit about how it is that you would decide whether there is infringement of a claim like that. So imagine that you have an idea to come up with strawberry shortcake. You might file a patent on strawberry shortcake, and it would be a dessert that has three layers: strawberries, whipped cream, and cake. And that would be your patent claim.

So let's say --

Can I get the clicker?

There we go. Sorry.

So let's say somebody else came along and

they started selling strawberry shortcake. It had cake, it had strawberries, and it had whipped cream. And the question was: Does this infringe your patent claim? How would you know the answer to that question? You have to compare the product to the claim.

So in this example, you would say: Does it have three layers? Yes. It does.

Does it have strawberries? Yes. It does.

Does it have whipped cream? Yes. It does.

And does it have cake? Yes. It does.

And if all of those requirements are met, then it infringes.

Importantly, you do not compare the product that was made by the inventor with the product that is made by the company that is accused of infringement. You don't compare the products. You compare the patent to the product in order to determine whether there is patent infringement.

So here, all of those requirements are met, and you would say that there is infringement.

So what about the actual issue here that you're going to be asked to decide? The claim of the '613 patent is to be compared to the product at issue,

and the product at issue here is Straumann's aligner made from that multi-layer material called Zendura FLX.

So the claim here has a number of requirements. I have pulled out the ones that you're going to hear us talking about. You'll have all of them, but I've pulled out the ones you're going to hear us talking about.

And the claim requires three or more layers, a hard layer that is copolyester, a soft layer that is a thermoplastic polyurethane elastomer.

So the first question for you is going to be, does Zendura FLX have those layers? And the answer to that question, you've already seen. It's in their own documents. The answer to that question is yes. It is multi-layer, and it is made out of those two types of material.

So what is Straumann going to say about that? I don't think they're going to disagree with what I just said, but I do think they're going to say that that soft layer doesn't satisfy this requirement about what's called elongation at break.

So what is this about? This is a soft, flexible material. "Elongation at break" means how much can you pull it apart before it breaks. Okay? So elongation at break of 200 percent, can you double it?

09:36 Can you pull it 200 percent before it breaks? If you
09:36 can pull it more than 200 percent, it's got more than
09:36 200 percent elongation at break.
09:36 And I think they're going to get up here
09:36 and tell you their soft layer doesn't have that.
09:36 However, if you look at the data sheet for their soft
09:36 layer, it's right there. It does. It's [redacted] percent.
09:36 And we're going to have a materials
09:36 scientist come up here and explain to you that in fact
09:36 it does satisfy that requirement.
09:36 Now, there's one other important thing
09:36 about this claim that I want to talk about, which is
09:36 this requirement of having three or more layers.
09:37 Because we've talked about a hard layer. We've talked
09:37 about a soft layer. And you may be asking yourself,
09:37 what about that third layer?
09:37 The third layer in the patent can be
09:37 anything. It could be hard, it could be soft, it could
09:37 be something else entirely. It doesn't matter. And
09:37 you may be asking yourself, well, that seems sort of
09:37 strange. Doesn't the order of these layers matter?
09:37 And the answer to that question is no. You need a hard
09:37 layer; you need a soft layer. Altogether there needs
09:37 to be three layers.
09:37 So I'll give you an example. I ride

09:37 motorcycles, and I have riding jeans. And my riding
09:37 jeans are denim on the outside, so they're kind of soft
09:37 and flexible. And they're lined with Kevlar. And the
09:37 idea is if you lay the bike down -- I have not tested
09:37 this principle, but this is the idea. You lay the bike
09:37 down, it's going to protect you, right? Because the
09:37 Kevlar's a lot tougher. It's not going to shred the
09:37 way denim will.
09:37 Now, I think it's a pretty cool
09:38 invention. Imagine somebody filed for a patent on
09:38 that. And somebody else came along and saw it and
09:38 thought that's pretty cool. I'm just going to turn it
09:38 inside out. And I'm going to put Kevlar on the
09:38 outside, and I'm going to have denim on the inside.
09:38 And maybe that would be a little bit softer against
09:38 your skin. But it's still taking advantage of the
09:38 invention. It's still jeans that are denim and Kevlar.
09:38 So if that happens, you can go back to
09:38 the Patent Office. Patent examination takes place over
09:38 a long period of time. So you file an application in
09:38 the Patent Office. Patent examiners look at it and
09:38 decide what claims you are entitled to based on the
09:38 disclosure that you made.
09:38 And if you see that someone else is using
09:38 your invention, you're allowed under the rules to go

back to the Patent Office and say, that's actually using our invention. And if you do that, the patent examiner will look and will compare what you are now saying you invented with what you said you invented when you filed the patent application and make a decision about whether you should be awarded that claim.

And that's what happened here. We saw that Straumann was using our invention. We went back to the Patent Office and applied for this claim. The patent examiner took a look at it, took a look at what we had filed all the way back when we first filed our patent application, and arrived at a conclusion that, yes. This was part of what we invented. And yes. We were entitled to this claim.

And so for purposes of infringing this claim -- and I don't think you're going to hear Straumann's counsel disagree with this -- you need a hard layer. You need a soft layer. Because each of those provides the critical material properties. Overall you need three layers, but it doesn't matter in what order you have them. So that's the materials patents.

I want to touch very briefly on the other patent you're going to be asked to consider, which is a

patent that relates to this scanner. It's a system for scanning a patient's teeth, and we sort of nickname it the "eraser patent" because the idea is you take a full scan, and the orthodontist looks at it and there's something wrong with part of it. And rather than having to retake the entire scan, which is kind of uncomfortable from a patient perspective, you can go in and just rescan that one little portion and slot it into the original image rather than having to take the scan all over again.

So the question is going to be, does Straumann use that? And answer is they do. This is a Straumann video.

Now, I want to make clear, I've superimposed an eraser on here. The eraser is not part of the original Straumann video. But this video basically shows the same thing. It shows that you can take a scan. You can identify a portion of it that you want to get rid of. You can erase it. That's the part that's not part of the video. And then in the video, you can slot back in a new scan of just that little portion.

And we'll have someone come in and show you that video in full and explain to you how that works.

09:41 So you're also going to be asked to make a decision about whether Straumann's scanner is using that part of our scanner invention.

09:41 So that's the infringement question that you're going to be asked to decide. And if you find that Straumann has infringed our property rights in our patents, then the question is going to be, what damages should Straumann pay for that past infringement?

09:41 Now, the law says that the way that you evaluate patent damages is you imagine that instead of just infringing, Straumann had come to us and asked for our permission to be able to use our patents, our inventions, in order to compete with us. And you may think to yourself, well, that never would have happened. And of course you're right, but what the law says is we imagine that that happened. And we look to what the parties would have agreed to as payment for the use of that invention at that time.

09:42 And you're going to hear testimony from an economist who did an analysis of that question and has concluded that $73.4 million is the amount that the parties would have agreed to for past damages in order for Straumann to be able to use those inventions to compete against us.

09:42 So I said Straumann is going to come up

09:42 and tell you they don't infringe. And I think they're
09:42 also then going to say, well, even if we do infringe,
09:43 the patents are invalid, that they're no good, and that
09:43 they should be taken away from us and taken away from
09:43 our inventors.
09:43 Now, you may remember last week you saw a
09:43 video that Judge Fogel was in -- that probably now
09:43 feels like a long time ago -- in which he explained
09:43 that to prove invalidity, to prove that a patent issued
09:43 by the United States government is invalid, they have
09:43 to prove that by clear and convincing evidence because
09:43 we presume that the patent examiners did their job.
09:43 And you may remember that he also
09:43 explained in that video that when an application comes
09:43 in, it's assigned to a patent examiner who is someone
09:43 with a background in the specific field in the
09:43 technology to evaluate the application and make a
09:43 decision as to whether the application should issue.
09:44 That happened here.
09:44 And in this case, there were actually a
09:44 number of different trained patent examiners who looked
09:44 at these questions. Three people across the various
09:44 materials patents and then someone different with
09:44 respect to the scanner patent.
09:44 And what Straumann wants you to believe

09:44 is that every single one of these people didn't do
09:44 their job. That's why they have such a high burden to
09:44 prove to you that that is true.
09:44 Now, I don't know exactly what they're
09:44 going to say about why they contend these patents are
09:44 invalid. One thing I do know, they're going to come up
09:44 here and tell you that Dr. Li, the inventor of the
09:44 materials patents, misrepresented to the Patent Office
09:44 the eight years of work that she had done and the
09:44 experiments that she had done coming up with the
09:45 material, the breakthrough material in these clear
09:45 plastic aligners. That's not right.
09:45 And Dr. Li is going to take the stand,
09:45 and she is going to tell you that what she told the
09:45 Patent Office was 100 percent true and that we
09:45 absolutely deserve the patents that we were awarded for
09:45 these inventions.
09:45 And that brings us to the final issue in
09:45 this case. So we filed this lawsuit for patent
09:45 infringement against Straumann. And they turned around
09:45 and filed antitrust counterclaims accusing us of being
09:45 a monopolist.
09:45 Now, I want to note, they hadn't said
09:45 anything about this before we caught them infringing
09:45 our patents. And you're going to see in the documents,

when they were talking internally, they never blamed Align for their problems until they got caught infringing.

But here we are. And so I need to talk to you about these allegations. Because the truth is we compete, and we compete with them fair and square.

Just because we are successful does not mean that we have done anything wrong.

H-E-B, amazing company, right? Everybody loves H-E-B, right? Great products, great prices, great service. Their competitors may not love them. That doesn't mean they've done anything wrong.

You're going to see that among clear aligners, Invisalign is far and away right now the most popular choice. That's not surprising. We've been in the market for almost 30 years. We've invested over $2 billion in research and development to develop these products. We've spent $1.4 billion educating orthodontists about that product and educating patients about this as an option.

So it's not surprising that a lot of people, when they want a clear aligner, come in and ask for Invisalign by name. And there's nothing wrong with that.

So I want to talk to you about three

things in connection with these allegations being made by Straumann.

Theme No. 1, who are the competitors? Because first and foremost, the folks that we are competing with, that we were competing with from the very beginning on Day 1, that at that point were 100 percent of the market, and the folks that we continue to compete with to this day are braces. That is our number one competitor. And yes. We compete with other clear aligner companies too.

Point No. 2, when you look at what actually happens in the market, we compete fairly. We compete -- we compete vigorously. That's good for consumers. That's what the antitrust laws are supposed to want, we compete fairly.

And finally, that what Straumann is complaining about is a consequence of their own decisions.

So first, this question of what is the market? The market pretty straightforwardly, we think, is the market for teeth straightening. You need to get your teeth straightened, what are you going to use? Maybe you use braces. Maybe you use clear aligners.

Straumann says no. Straumann says the market is doctor-directed clear aligners. In other

words, they're trying to say that clear aligners, the technology that we pioneered, is its own special market.

So the question at the end of the day for you is going to be, do aligners compete with braces or not?

Well, in order to answer this question, all you really have to do is look at Straumann's own documents. This is a Straumann annual report from 2024. An annual report is a document that you publicly make, if you're a public company, available to your investors. And you're required to be truthful in your annual report.

And we can take a look here at what they said: Clear aligners, a discreet alternative to traditional braces, offer effective teeth straightening while enhancing aesthetic appeal. Such innovations have broadened the teeth-straightening market to include adults who might otherwise avoid conventional braces while remaining a popular choice for teenagers with misaligned teeth.

Straumann's own documents recognize that the market here is a teeth-straightening market. Why is that?

You're going to hear testimony from

Dr. Jena. He's a doctor. He's an MD. He sees patients. He's also an economist, and he studies healthcare economics. And he's going to come here and explain that when you're thinking about whether products are in the same market, when you're thinking about whether they compete with each other, you ask yourself, do the products do a similar thing? Do the products do that similar thing for similar kinds of customers? Do they do it in a similar way, and are they sold for a similar price? They don't have to be the same, right, but are they similar?

So you can imagine, you know, you've got a headache. And you go to, you know, the local pharmacy, and you want something for your headache. They've got Advil. They've got Tylenol. They've got Excedrin. They're not all identical. Each of them works in a slightly different way, but they're all pain medicine. They're all things that you might take for a headache. They're all in the market for headache remedies.

So the question for you here is going to be, again, as I said, do braces and aligners compete with each other?

Remember I told you about Dr. Taylor, the guy from Brazos Braces here in town who Straumann hired

to come testify in this case for them. If we take a look at his website, what does he say? Types of braces. There are traditional metal braces. There are clear ceramic braces, and there are clear aligners. All essentially different types of braces, different ways that you can straighten your teeth.

That's exactly right.

And you're also going to hear the price of braces and aligners is pretty similar on average. Now, look, the range varies a lot because it depends on how crooked your teeth are and how much movement is required. So it's a pretty big range. But you're going to hear the average for both aligners and braces winds up being pretty similar.

So do they compete with each other? We think the answer to that question is going to be questionably yes.

And this is really important because Straumann's going to come in here and show you and say, oh, Align dominates the market. They have a huge percentage of the market. Look at how much of the market they have.

And if you're only talking about clear aligners, yeah, I mean, we pioneered the product. It's not surprising that most clear aligners are Invisalign

aligners, relative to all of these new companies coming in and trying to compete with us.

But if you look at the actual teeth-straightening market, braces are -- there's way more people who use braces today than there are clear aligners. They're never going to show you that. They're never even going to argue that we dominate that market or we're a monopolist in that market, because we're not. And that's just not a credible position.

And so in order to be able to make out this claim, they have to convince you that this is true. And that's why they've taken what I think you're going to find is a pretty surprising position with respect to what actually competes with what.

So what's the next question? And to be clear, if you agree with us on what the market is, if you agree with us that braces and aligners compete with each other, we're done. They don't even have a claim.

THE COURT: Counsel, you have five minutes.

MS. DURIE: Thank you.

But I want to address the rest of their argument because it's important. Because they're going to come up here and show you a bunch of internal documents and say, oh, you guys were talking, talking

about, you know, putting a moat around your business and about, you know, all of this competition and trying to squelch the competition.

And I want to suggest to you it's not that surprising that internally companies use that kind of language. It's business. Of course we want to compete and of course we want to win.

But the question is, in the real world when you look at what actually happened, did we compete fairly? And the answer to that question is yes.

So what is Straumann complaining about? First thing they're complaining about is volume discounts. We have loyalty programs, okay? The more you buy, the more you save. And they're going to come in here and tell you there's something wrong with that.

I would suggest to you there's something right about that. We are charging lower prices. That is procompetitive. That is a good thing from a consumer point of view and from an antitrust point of view. That's not a bad thing.

And then they're going to come in and they're going to say, well, you have programs -- sorry, you have programs that basically provide marketing resources to doctors and that help doctors transform their practices from being analog to being digital.

And yes, doctors come to us and they say, Hey, we want to switch to Invisalign. We want to make investments. Will you help us?

And when we do that, we want to make sure that the doctors are using that investment that we are making in them for Invisalign. But there's not a bait and switch where a customer comes in and says, I want Invisalign because they've seen all of our marketing and then get sold something else again.

Again, that's good for doctors. We're making investments in them, and it's ultimately good for patients too.

And then finally, Straumann complains that our scanner here makes it too hard to order their products.

Now, I want to be clear. You can use our scanner to order any competing product that you want. You can create an industry standard file format. You can export it, and you can use it to order aligners from any one of our competitors.

Their complaint is it takes too many buttons. You have to click too many times.

Now, you're going to hear testimony. It takes less than a minute. It is not a big deal at all. You know, one way you know this is not actually a

problem: One out of every five ClearCorrect digital orders comes from one of our scanners.

There's a lot of scanners out there. Okay? One out of every five comes from our scanner. That's more orders than they get from theirs, okay? So it's not that hard.

And, finally, Straumann's failures were caused by self-inflicted wounds. A lot of these other companies have been doing just fine. Growing revenue year over year, competing with us, clear aligners. Straumann is the one company that is suffering, the one company that is failing. And it is trying to blame that failure on us.

But you will see in their own internal documents, in 2020 when they were analyzing this, what were our pain points? Insufficient product capacity, lack of product innovation, aligner material is not best in class, our aligners do not fit, our software does not cover all customer needs.

In July of 2022, what did their CEO say? Many of the reasons for our shortfall are self-inflicted wounds, lack of leadership, blocking customer accounts, treatment planning quality still not where it should be.

And in December of 2024, had they solved

09:58 the problem? No. Their production cost was twice as high as everybody else. They were behind their competitors on treatment planning. They had scattered decision-making and a lack of standardization.

Their own documents tell the tale for why it is that they are not being successful in the market.

And one thing you will see is nowhere in any of these documents do they blame that failure on us.

Ladies and gentlemen, this is a tale of two companies. One company that has pioneered a revolutionary new product that has truly transformed the practice of dentistry. Another company that was caught with its hand in the cookie jar and is trying to shift blame and responsibility to someone else.

We really look forward to presenting the evidence to you on our case. And thank you so much for your attention this morning.

THE COURT: Thank you, ma'am.

Mr. Mueller.

MR. MUELLER: Your Honor, may we just set up for a minute?

THE COURT: Of course.

OPENING STATEMENT ON BEHALF OF THE DEFENDANT

MR. MUELLER: Good morning again, ladies

and gentlemen.

Ladies and gentlemen, this is a case about competition. At the heart of this case is the question of whether the competition that Align has engaged in is fair or unfair. And we intend to show and the evidence will establish that Align has locked in customers, created a closed system, harmed competition, suppressed competitors, including ClearCorrect, and that the real victim in this case is ClearCorrect.

We are going to show that over a period of years, Align planned and executed a strategy of suppressing competition to preserve a dominant market position in the dental aligner market.

Now, in jury selection you may recall, I used the analogy of two students on the schoolyard and one student mistreating another student and then finally making an allegation, a false allegation, of stealing a lunch. And at that point -- at that point, the second student provided the full story and said, that allegation is false. In fact, here's what's really been happening. I'm the real victim here. That's this case.

In this case, Align has been subjecting the industry generally, and ClearCorrect specifically,

to anticompetitive conduct for years. On top of that, Align in this lawsuit is making allegations of patent infringement that are not correct. We will show that. There is no infringement of any of the patents in this case.

ClearCorrect and its parent Straumann are here to say, enough. Enough. And we're here to provide the full story, the full set of facts to all of you.

Now, let's get started with a discussion of the clear aligner marketplace in the United States.

Now, Ms. Durie said a few times that this is the wrong way to look at it, that you should look at the teeth-straightening market, including wire braces.

Ladies and gentlemen, you may recall during jury selection, I asked you all a few questions about purchasing vehicles, and some of you own trucks, some of you don't. But those of you who own trucks, at least some of you had specific reasons for purchasing a truck. There were functional reasons why trucks were different than other vehicles, even though all the vehicles could transport you from Point A to Point B.

Now, it's correct that wire braces can transport teeth, move teeth, straighten teeth. But it's also correct that there are functional

10:02 distinctions between wire braces and clear aligners, just like there's functional distinctions between trucks and passenger cars and motorcycles.

The argument that's being made by Align in this case is the equivalent of saying that rather than look at the truck market, you should look at the entire vehicle market. And even if a particular company had 90 percent or 85 percent of the truck market, don't worry about that. There's a larger vehicle market.

And they might even say if you go down to a vehicle dealership, you're going to see some passenger cars and some trucks on the lot. Just like at Dr. Taylor's braces shop, you might see some wire braces and clear aligners.

But ladies and gentlemen, that's not the question. The question is in the distinct market of clear aligners, just like the distinct market of trucks, does Align have a dominant position? And they do.

Here's the revenue numbers, and you'll see there's no real dispute about this. On the bottom, clustered near the bottom, are various other clear aligner companies. One of those is ClearCorrect.

ClearCorrect aligners are one of the

10:03 other clear aligner offered to the marketplace, and you can see those companies are clustered near the bottom in terms of annual revenues. Far above is Align and its Invisalign product.

Now, credit where credit is due. Invisalign is a good product, and part of their success is due to that being a quality product. But that's not the only reason. That's not the only reason.

Other reasons why they have achieved and maintained this dominant market position in the U.S. market for clear aligners is because of anticompetitive conduct, and we're going to prove that in this trial piece by piece, document by document, witness after witness.

We are going to show that the real victim here is ClearCorrect, which has been victimized by the anticompetitive conduct of Align.

Now, just as background before we get into some of the details, here's an overview of the process for clear aligners. And I'll note at the outset, Align does not hold patents on the basic idea of a clear aligner. You may have had the impression that there's something wrong with making clear aligners and offering a competitive product. There's not. Okay? There's not.

10:04 1 You will see that the patents in this
10:04 2 case are very specific, and they have very specific
10:04 3 requirements. Other companies are allowed to make
10:04 4 clear aligners and offer competitive products in the
10:04 5 marketplace. Align doesn't own the basic idea of any
10:04 6 type of clear aligner.
10:04 7 Here, we see a doctor discussing
10:04 8 treatment options with a patient. And in this case
10:05 9 when I say "doctor," I'm referring to dentists and
10:05 10 orthodontists who prescribe dental treatments.
10:05 11 The doctor will use what's called an
10:05 12 intraoral scanner, and Ms. Durie said a few words about
10:05 13 those, to scan the mouth of the patient and to scan the
10:05 14 topography, the shape of the teeth.
10:05 15 The scanner has a wand. It's connected
10:05 16 to a console. And that is the scanner equipment.
10:05 17 Now, then, there needs to be an aligner,
10:05 18 a plastic aligner which is designed to start to
10:05 19 straighten the teeth over time, and a patient will use
10:05 20 multiple aligners over the course of a treatment
10:05 21 program. Each aligner is designed to move the teeth a
10:05 22 bit more, and so progressively, the aligners move the
10:05 23 teeth into a straighter shape.
10:05 24 They are made of materials, and the
10:05 25 materials used in aligners are critical to this case.

10:05 We're going to talk a lot and present evidence about the different types of materials that can be used in aligners.

10:06 It's a fascinating area of technology, and we're going to do our best to give you as much information as we can.

10:06 It turns out that the materials used in aligners, it can be quite unpredictable how they're going to interact with each other, and it's difficult and takes hard work and research and development to find an effective composition of materials that will work well, that will be safe and effective for patients. And so you're going to learn a lot about that over the course of the trial.

10:06 Those materials are formed through a thermoforming process into the appropriate shape, and we will take you through that process as well, including how the ClearCorrect aligners, the ones that are accused of infringement, are made. They're made in Round Rock, and we're going to take you inside that Round Rock facility and show you precisely how they are made.

10:06 So let's go through some of the facts in the case and put these on a timeline to give you the chronology, and we're going to start with the

development of Invisalign's products, including some of the technology that's relevant to this case.

Now, in 1997, we have the founding of Align. And as Ms. Durie said, Align was launched to try to commercialize clear dental aligners. And again, credit where credit is due, it was a -- we have no quarrel with their founding of the company or their efforts to launch the aligners into the industry.

After the initial version of Invisalign, they wanted to improve it, and they went to a company called Bay Materials, Bay Materials, for help in finding materials that would be better for the next generation of Invisalign after the initial version.

Bay Materials was a company started in California by a gentleman named Ray Stewart, who started out of his garage. He was a materials scientist. He's now retired. And he had worked for decades on various types of material compositions for a whole wide range of industries.

So Bay Materials over time did specialized research on materials for different types of devices.

Here's a picture of John Lahlouh. I'll say a few more words about him in a bit. He's going to be a witness in this trial. This picture's not from

10:08 1 the founding. It's from later on in the company's
10:08 2 history. But you can see some equipment that
10:08 3 Mr. Lahlouh is working with and some of the raw
10:08 4 materials used in the composition's design by Bay
10:08 5 Materials.
10:08 6 Back in 1999, Align went to Bay Materials
10:08 7 for help with their aligners, and they worked together
10:08 8 on a material that became known as EX30. And this was
10:08 9 used in next generation of Invisalign. EX30 had a
10:08 10 single layer of materials that would be used in dental
10:08 11 aligners, and that will be in contrast to some
10:08 12 multi-layer materials that we'll talk about in a bit.
10:08 13 So Align goes to Bay Materials for help
10:08 14 with the EX30, and that becomes incorporated into the
10:09 15 updated version of Align's aligners in 2001. At that
10:09 16 point, the companies went their separate ways, and
10:09 17 Align, to its credit, continued to do research and
10:09 18 development, continued to try to find a next generation
10:09 19 after that.
10:09 20 And they worked with more than a dozen
10:09 21 companies over a decade. So a dozen different
10:09 22 companies on various aspects of creating a next
10:09 23 generation to follow the EX30 version of Invisalign.
10:09 24 And after about a decade of research with
10:09 25 all those other companies with whom they consulted,

10:09 they arrived at something they called SmartTrack. And this is a press release from October of 2012. The actual product was launched, as Ms. Durie said, in 2013. It was announced in 2012.

And here, this says that Align is announcing SmartTrack, the next generation of Invisalign clear aligner material. 2012, SmartTrack.

Now, critically, critically, this material has something that's known as a soft-hard-soft configuration. I'll say that again. It's important. It's a multi-layer material, soft-hard-soft. And let me try to show you a visual to explain exactly what I mean.

Here, we have a patient's mouth, and if you look closely, there's actually a clear plastic aligner on the teeth on the bottom and the top. There's -- so there's aligners in this patient's mouth right now.

If we were to look at one of those aligners and focus on one of the caps, so to speak, for a tooth and cut it in half, it would have, if it was using SmartTrack, the soft -- indicated by pink -- hard -- indicated by blue -- soft configuration. Soft-hard-soft.

Now, these are all plastics, and they're

not pink and blue. They're clear. But they are different materials. Soft on the outer layers and hard on the inner layer. That was the SmartTrack material.

I'm going to contrast that later with what ClearCorrect arrived at and what Bay Materials developed for an alternative technology, but let me pause on one point right now.

Ms. Durie said, and she's right, that for a patent infringement case, the ultimate question is the comparison of what we call the claims in the patent, which is the section at the end. You take the claims that are being asserted by the plaintiff and you compare them to the accused product to see if all the requirements in the claims are met.

That is the proper analysis, and that's what we're going to do to show noninfringement.

But there's a backstory and a context to this case, and Ms. Durie herself compared SmartTrack, this product right here, with what's used in ClearCorrect.

And so you're going to see that even though it is 100 percent right that an infringement analysis requires a comparison of the claims to the products, the product-to-product comparison is relevant to other issues in this case. And the truth is this

10:12 product, the soft-hard-soft product, is the opposite,
10:12 the opposite of what ClearCorrect does, as you will
10:12 see.
10:12 So Align, after developing SmartTrack,
10:12 applied for patents on soft-hard-soft. And they
10:12 submitted a sworn declaration from Dr. Li to the Patent
10:12 Office in the early years when they were applying for
10:12 patents on soft-hard-soft. And it said: Align
10:12 produced the SmartTrack material, also referred to
10:12 herein as ST30, which is a product according to the
10:12 instant claims, the claims in the patent, comprising a
10:12 layered material with a hard copolyester layer between
10:13 two soft layers of thermoplastic polyurethane
10:13 elastomer.
10:13 That's what I just showed you. The two
10:13 hard layers on the outside, the soft layer -- I'm
10:13 sorry. The two soft layers on the outside and the hard
10:13 layer in between. Soft-hard-soft. And they told the
10:13 Patent Office the two soft layers with a hard
10:13 copolyester between.
10:13 So these are the early patent
10:13 applications that they filed and what they said to the
10:13 Patent Office in that time period.
10:13 Now, let's switch gears and talk about
10:13 the development of what became the accused product in

this case. I mentioned to you earlier that in the late 1990s, that Align had gone to Bay Materials, and then they had gone their separate ways after the EX30 project.

Well, it turns out that Bay Materials, on its own, did further work on materials that could be used in dental aligners. They did further independent development when they went their own way.

Mr. Lahlouh, John Lahlouh, who will testify in this case, is going to explain what happened. And he's going to explain to you a development process that stretched over years.

You heard Ms. Durie say that -- made an accusation, I should say, that there was a shortcut taken, a shortcut taken by the defendants. Just keep that in mind, shortcut, as we walk through this evidence and as you hear the testimony in this case.

Here's a lab notebook from John Lahlouh. And if you look carefully at the date, it's August 12th, 2002. And you can see it right there. That's 24 years ago.

In that notebook, which came in -- a lab notebook which also talks about alternatives to EX30, the material used in the Align product that Bay Materials had consulted for, now Bay Materials has

10:15 moved on to alternatives.

10:15 So here, we have this lab notebook, and it has as the title of this page Multi-Layered Construction. It also says a three-layer construction.

10:15 Now, do you recall Ms. Durie talked about multi-layer construction using two different materials? Well, here, we have a multi-layer construction using two different materials. And how do we know that? It's right there. If you look on the right-hand side of the page, do you see there's two materials listed? There's a Surlyn in the outer layers and another material, Selar, in the middle. Two different materials in a three-layer construction. And the materials on the outer layers, the Surlyn, are hard.

10:15 2002, 24 years ago. Handwritten lab notebook, three-layer construction, hard layers. Hard layers on the outside.

10:16 This is different than SmartTrack. SmartTrack has soft layers on the outside and the hard layer on inside. This is talking about a multi-layer construction with hard layers on the outside. 24 years ago.

10:16 Now, Bay Materials was a small company then and remains a relatively small shop today. In the 15 years or so that followed that lab notebook,

10:16 Mr. Lahlouh and his colleagues worked on a wide variety of projects in various industries. They worked on everything from bulletproof vests to cladding for the sides of naval ships, to prevent rusting of the metal on the sides of the ships, to battery technology. They worked on some plastic used in thermometers for turkeys for when you're cooking. Wide variety of industries.

But periodically, over time, Mr. Lahlouh and his colleagues returned, returned to the idea of new materials for dental aligners. And over time, over time, Mr. Lahlouh and his colleagues refined, refined that germ of the idea you can see way back in 2002, refined it to become a hard-soft-hard configuration for dental aligners.

They did that, you will learn, before SmartTrack was even introduced to the market. And of course, SmartTrack is the opposite. SmartTrack is soft-hard-soft.

In 2018, after years of work -- no shortcuts here. This is years of work starting back 24 years ago -- Bay Materials announced Zendura FLX. They announced the commercial release of Zendura FLX, a new material engineered specially for fabricating clear aligner appliances.

And Mr. Lahlouh is going to tell you all

about the independent development work that led to this. And he'll tell you that he was familiar with Align. He was familiar with Align's aligners, and he even looked at Align patents.

To copy? No. Quite the opposite. To strike his own path, a path that he had been on for years and years and years and develop his own technology. So he and his colleagues developed Zendura FLX, a new material engineered specially for fabricating clear aligner appliances.

Zendura FLX is used in the ClearCorrect aligners that are accused of infringement in this case, and that's why it's so important to the issues in the case. Zendura FLX is the material used in the ClearCorrect aligners that are accused of infringement in this case.

Now, let's talk about ClearCorrect. ClearCorrect was founded in 2006, 20 years ago, in Houston. And it has been based in Texas ever since. The headquarters today is in Round Rock, and this is actually a picture of a celebration photo from a few months ago for the 20th anniversary of the company.

Now, if you look closely at the building, you can see right below ClearCorrect, it says: A Straumann Group brand.

10:19 And it is correct that Straumann acquired ClearCorrect years ago. It's also correct that Straumann acquired Bay Materials at a different point in time. And so Straumann is the parent company of both Bay Materials and ClearCorrect.

It's also correct that Straumann is a Swiss dental company. That's all true. And we're going to call witnesses, including Ms. Sterling from Straumann, to explain what Straumann is and what Straumann does.

But it's interesting that the plaintiff and Ms. Durie in her opening statement only uses the term "Straumann" to refer to the defendants. The defendants include ClearCorrect. Straumann may be its parent company, but ClearCorrect is a Texas company headquartered in Round Rock. And the products at issue in this case on the aligner side are ClearCorrect aligners made using Zendura FLX material.

So we think it's important to be careful and precise in referring to what's happening with respect to the parties and the facts. And the truth is, the aligners being made here are ClearCorrect aligners manufactured right up the road in Round Rock.

The fact that Straumann is the parent company doesn't change the basic fact that ClearCorrect

10:20 is a Texas operation which makes these aligners here and does so using Zendura FLX material from Bay Materials.

Now, in 2020, ClearCorrect which, again, had been around since 2006, launched the aligners made using the Zendura material. They called it as a tradename ClearQuartz, but it was the Bay Materials Zendura FLX material that was used in there. And it used, as I said, the hard-soft-hard configuration, the very opposite of what SmartTrack does with soft-hard-soft.

I'll also note you might think that because Straumann is the parent company today, Bay Materials and ClearCorrect, that Bay Materials only supplies Zendura FLX to ClearCorrect today. It doesn't supply Zendura FLX to other clear aligner companies out in the marketplace. Well, they do. They actually supply it to anyone who wants to use it, even if that other company is a direct competitor to ClearCorrect.

Bay Materials is an open shop. It'll sell to any clear aligner company in the industry. So it supplies to ClearCorrect. It also supplies to ClearCorrect competitors.

So that's the development story, and that's the backdrop for many of the technical issues in

10:21 the case. And as you can see, the two parties here,
10:21 Align on the one hand, ClearCorrect on the other, were
10:22 on different technological paths. One ended up with
10:22 soft-hard-soft, that's Align. One ended up with
10:22 hard-soft-hard, that's ClearCorrect, using the Bay
10:22 Materials Zendura FLX material.
10:22 Okay. Now, the way they should have
10:22 worked is that both parties compete on a level playing
10:22 field and let the best product win out on quality, on
10:22 price. Level playing field. In our American system,
10:22 we certainly believe in robust competition, but we also
10:22 believe in a level playing field.
10:22 And what should have happened here is
10:22 exactly that. But instead what has happened here is at
10:22 every turn, Align has been tilting the playing field in
10:22 unfair ways to achieve what you see here, their
10:22 dominant market position in the U.S. market for clear
10:22 dental aligners.
10:22 So let's look at how they did it. And
10:22 here's the timeline we just went through, and I want to
10:22 now zoom in on 2011 when Align purchased a company
10:23 called Cadent. So they purchased a company called
10:23 Cadent. There's nothing wrong with acquiring a
10:23 company, and they did it. It had a scanning business.
10:23 So at that point, Align began to offer

10:23 the scanners, which had previously -- the mouth
10:23 scanners, which previously had been sold by Cadent.
10:23 And Align began marketing these as the iTero scanners.
10:23 But what they did with those scanners was to begin to
10:23 lock in, lock in doctors to Invisalign. You'll see
10:23 that over time, they used these scanners with the wand
10:23 and the console to lock in doctors and therefore their
10:23 patients into Invisalign.
10:23 So let's look at exactly how they did it,
10:23 okay?
10:23 In 2012, they announced SmartTrack, the
10:23 soft-hard-soft.
10:23 Here's 2013, an internal e-mail: As
10:23 we're preparing for serious competition in three to
10:23 five years -- by the way, they were right. Serious
10:23 competition was coming in three to five years. Five
10:24 years was Zendura FLX being launched.
10:24 Internal e-mail: As we're preparing for
10:24 serious competition in three to five years, an iTero
10:24 customer is a locked-in Invisalign customer.
10:24 Align's own words, "locked in."
10:24 And they went on to say quite candidly:
10:24 We should be locking in every Invisalign customer into
10:24 iTero now.
10:24 ITero's the scanner.

10:24 THE COURT: Mr. Mueller, if you'd hold on one second.

If anyone is sitting at counsel table and you have a phone on, you need to turn it off because we're getting feedback through the mics and we're having a hard time hearing Mr. Mueller. So anyone who's sitting in front of the bar starting where Mr. Nash is forward, if you have a phone on, you need to turn it off, please.

I'm sorry for interrupting.

(Off-the-record discussion.)

MR. MUELLER: Okay. So 2013, we see this e-mail regarding lock in.

2017, here's an internal sales presentation, a presentation to salespeople inside Align. And this was based on some plans that began in 2017. This particular presentation was a bit later. It talks about competition being here.

This, again, an internal sales presentation. Look who's at the center, ClearCorrect, recognizing that competition is here.

And what do they want to do? Build the moat around your business.

This is literally a slide they showed to their own sales force, confidential - for internal use

10:25 only. We received this as part of the documents that
10:25 we received in this litigation. Confidential - for
10:25 internal use only, build the moat around your business.
10:25 Now, Ms. Durie compared Align at one
10:25 point to H-E-B, the grocery store. You ask yourself,
10:26 have you ever seen a moat at H-E-B? And of course the
10:26 answer is no.
10:26 This moat was designed to protect from --
10:26 protect Align from competition. It was designed to
10:26 keep dentists and orthodontists inside the moat in this
10:26 closed system and to keep all the other competitors
10:26 outside the moat unable to compete on a level playing
10:26 field. That's what this was about.
10:26 And again, you don't have to take it from
10:26 me. The CEO, Joe Hogan, said: We have such a huge
10:26 share of the market, why do we want to give them this
10:26 option?
10:26 By the way, we have such a huge share of
10:26 the market. Recall the effort to try to expand the
10:26 market to include wire braces? Here's the CEO himself
10:26 saying: We have such a huge share of the market.
10:26 And he's obviously referring to dental
10:26 aligners.
10:26 Why do we want to give them this option?
10:26 And the option that he's referring to is making

10:26 Invisalign interoperable with other companies' scanners.

What they did -- what they did, the moat, was the following: They told dentists and orthodontists, we're not going to supply you Invisalign anymore unless you use our scanner, iTero. We're not going to give you the ability to offer your patients Invisalign unless you use our scanner.

Now, scanners are costly and they take up some space in an office, and you can't have a bunch of different scanners in your office. So effectively, this was forcing doctors to use iTero, and then it turns out iTero is more difficult to use with other aligners than Invisalign.

So forcing them to use iTero or else lose the supply of Invisalign -- that's another way to put it. If you don't buy the iTero, no more Invisalign. Once you have the iTero, it's more difficult to use with other aligners. So it's sort of a one-two punch. You have to use our scanner, and the scanner doesn't work as well with other aligners than Invisalign.

And they were quite candid, again, in internal communications. If you want to do Invisalign, you're forced to buy iTero and live with it.

And the response was: I think that

10:28 pretty much sums it up, Dan.

These are, by the way, e-mails among executives at Align.

Here's the CEO again receiving an e-mail from a colleague of his. "My point," Mr. Pudipeddi said to the CEO, "is that iTero and Invisalign are in a closed ecosystem."

That's exactly what they wanted. They wanted to close the system, lock in doctors, and prevent doctors and patients from having fair access to competitive products like ClearCorrect.

They were quite candid. Again, the barriers to competition were the goal. This is their own words: Create barriers to switch - protects from competition.

In these internal communications, which they presumably didn't think would see the light of day, but they have and they will over the course of this trial, they were very candid. Protect from competition, create a barrier to switch to other products. This is the opposite of a level playing field.

They forced customers to agree to provisions that were exclusionary. Here's a provision that says: Good standing. Good standing in the eyes

10:29 of Invisalign and Align means not diverting prospective patients into non-Invisalign treatment.

And they said if you don't maintain good standing, they would even remove you from the Find a Doctor tool on their website.

Again, in their own communications, they were candid about what they were trying to do.

Here, this says: Lock in DSOs. Those are dental service organizations. Lock them in.

So these are all anticompetitive activities, and you're going to hear about this in detail, I can promise you, starting today about exactly what they did. This harmed the entire market.

But with respect to Zendura FLX and ClearCorrect, Align took this campaign of anticompetitive conduct to the next level and specifically targeted Zendura.

So when they learned of it being launched in 2018, they started to test it. And there's nothing wrong with that. You're allowed to test competitive products out in the marketplace, sometimes called reverse engineering. That's fine. Everybody is allowed to do that.

But what you do with that information in terms of whether you target someone unfairly is a whole

10:30 other matter. Here, after conducting some testing,
10:30 they said: It's the best material we've seen so far.
10:30 Now, remember Ms. Durie made a few
10:30 criticisms of the ClearCorrect aligners. Well, here
10:30 they are internally saying Zendura FLX is the best
10:30 material we've seen so far.
10:30 And they were very, very specific in what
10:30 it was, and they acknowledged that Bay Materials had
10:30 reverse, the reverse of SmartTrack, hard-soft-hard.
10:30 SmartTrack was soft-hard-soft. So this is the
10:31 opposite. They're recognizing that Bay Materials had
10:31 the reverse approach.
10:31 Mr. Hogan was worried. He said: I'm
10:31 really worried about marginalizing SmartTrack. I am
10:31 just looking for any area of leverage for SmartTrack
10:31 versus this material. Looking for leverage against
10:31 this new competitive product.
10:31 And then he said -- or he received an
10:31 e-mail from his colleague, the vice president of
10:31 research and development, Srini Kaza: Unless we can
10:31 stop with IP, they will keep coming.
10:31 IP stands for intellectual property, and
10:31 patents are a form of intellectual property. So unless
10:31 we can stop with IP, they will keep coming.
10:31 They viewed it as a big threat.

10:31 Here's another internal presentation, and they describe it as Bay Materials hard-soft-hard structure. They didn't say this is some copy of our -- or knockoff of soft-hard-soft. They said this is the Bay Materials hard-soft-hard. And they viewed it, in their own words, as a big threat to the superiority of SmartTrack.

10:32 Now, when Straumann acquired Bay Materials, Mr. Hogan e-mailed Mr. Pudipeddi, and he said: Read this over. This is a press release about the acquisition. They're the best competitor we have, referring to Straumann.

10:32 He also said to Mr. Pudipeddi -- this is the CEO of the company: I just wanted to get this asset off the market. Meaning Bay Materials and Zendura FLX. Again, that's not a level playing field. That's trying to remove the competition in unfair ways.

10:32 So what did they do? Well, they went back to the Patent Office. They went back to the Patent Office. And recall, years before, they had submitted a sworn declaration to the Patent Office saying that they had produced the SmartTrack material with the two soft layers and a hard layer in the middle. And that was true. That was true.

10:32 They went back to the Patent Office and

10:32 1 tried to stretch the claims, stretch the claims to get
10:32 2 new claims to go after Zendura FLX. And they submitted
10:33 3 new applications in a new declaration.
10:33 4 Now, this is our red line, so to speak,
10:33 5 showing the differences between the earlier declaration
10:33 6 that was made to the Patent Office and the new
10:33 7 declaration, and there were lots of changes. And we're
10:33 8 going to take a hard look at those over the course of
10:33 9 this trial to see if those new statements in the
10:33 10 changed declarations were well supported.
10:33 11 And let me make two points right now.
10:33 12 We think you will see that Align had
10:33 13 ample data that was relevant to the veracity and the
10:33 14 truthfulness of these statements that was not provided
10:33 15 to the Patent Office. That was not provided to the
10:33 16 Patent Office. You're going to have to consider the
10:33 17 question why.
10:33 18 The second thing is that I do want to
10:33 19 know -- Ms. Durie said, well, when a company sees that
10:33 20 someone's using their invention, they can go to the
10:33 21 Patent Office and file a new application.
10:33 22 I want to make one thing crystal clear.
10:33 23 Align never went to the Patent Office and said, we
10:34 24 think Zendura FLX is infringing. We'd like to make
10:34 25 sure you agree with that.

They never said that. Not once.

The Patent Office had utterly no idea, none, none, that the patents that they were applying for were going to be used against Zendura FLX and ClearCorrect. There was not a hint of that in any statement made to the Patent Office, not once, not ever. The Patent Office had no idea whatsoever what Align would one day do with the patents that they were applying for in that time period.

Now, based on things like that changed declaration, asserted patents did issue, and those are the material patents in this case.

And you will see, ladies and gentlemen, that despite trying to stretch the claims to get IP to knock Zendura off the market, they failed. The claims are not met. And the reason why is you need to look at these very carefully.

Each of these claims has very particular requirements that need to be met. And these requirements, these requirements originated from research and development that culminated in the soft-hard-soft configuration. And it's not surprising that they are a better fit for soft-hard-soft and that they don't fit the hard-soft-hard material used by ClearCorrect.

10:35 And just to give you one example of one claim, we have this language here on "elongation at break of greater than about 200 percent." You will see the overwhelming evidence of testing that occurred before this lawsuit was filed and after is that the elongation at break of the ClearCorrect aligners and the materials in them is less than, less than this requirement. There's no infringement.

Now, let me ask Mr. John Lahlouh to stand up for just a moment. Because in this case, Align is not just arguing that there is infringement, but they are arguing that there was willful infringement. Willful infringement.

Mr. Lahlouh was at Bay Materials -- has been at Bay Materials for almost 25 years, and he was centrally involved in the work that led to Zendura FLX.

That 2002 notebook was his. He's had a distinguished materials scientist career for decades on a whole wide range of industries, including the materials used in dental aligners. And you're going to hear, you're going to hear that the Zendura FLX material reflected his own hard work and his own innovation as well as that of his colleagues.

Now, Align has told us that they are going to call him as part of --

10:36 THE COURT: Can he sit -- can he sit down?

10:36 MR. MUELLER: Yes. You can sit down, Mr. Lahlouh.

10:36 (Laughter.)

10:36 MR. MUELLER: Thank you.

10:36 Align has told us that Mr. Lahlouh will be called as part of their case, which they have every right to do. They have every right to do. But that means he's going to be cross-examined before he has a chance for us to ask him some additional questions to make sure you receive the full story of what he's done.

10:37 And all I'll ask you is just, if you could, make sure you listen to his full story, his full story, including when we get a chance to ask him some questions about all the work he did and all the facts that are relevant to the development of Zendura FLX.

10:37 I think you're going to find that he's a good man who did the right thing at every turn and that Zendura FLX reflects his own hard work and his own innovation and that he took nothing, nothing from Align.

10:37 Now, the same is true for the other patent in this case. This involves a very particular scanner feature. And to be clear, this patent doesn't

10:37 cover the basic idea of an intraoral scanner. Those have been around for decades.

This covers a very specific feature used in certain scenarios when after an initial scan, one of the teeth is physically moved in a patient's mouth and there needs to be a rescan. In that scenario, this claim is directed to a very specific way of doing even that. You have to use a particular type of surface data.

And you will hear that the scanners that Straumann sells don't use that very specific type of rescan approach, doesn't use the surface data required by that very particular approach for that very specific scenario. So there too, there is no infringement.

One more note on the scanners. In sharp contrast to the iTero scanner that Align sells, where Align says to doctors, you have to use our scanner if you want Invisalign, and then you will see the evidence will show that that scanner is more cumbersome to use with other aligners, that's part of their effort to create that closed system and lock in customers, lock in doctors.

In contrast, Straumann, which its scanner business came from a company that was called Dental Wings. And in product literature, they described it as

10:38 the Dental Wings Open System, Open System.

10:39 That was true for the original Dental Wings products and is true today for the scanners at issue in this case. They're open products.

10:39 ClearCorrect will sell a dentist dental aligners even if they don't buy their scanner, okay? And the Straumann scanner will work just as well with any company's aligner. It's an open system. Open on the supply of aligners. Open on the supply of scanners.

10:39 And that's the way it's done in this industry by other companies as well, with one exception. Align. Align is the closed system company. Align is the lock-in company. And Align has that dominant market position in substantial part because of its lock-in closed system approach.

10:39 Now, Ms. Durie showed you this clause in the patent, the patent clause in the Constitution, which says: To promote progress of science and the useful arts.

10:39 And I'd like to ask you to consider, as you hear the evidence in this case, is this set of patent claims being made by Align here really to promote the progress of science and the useful arts? And I suggest to you the evidence will show it's not.

10:40 It's not. It's yet another step in the continuing campaign to suppress competition from companies like ClearCorrect.

And in the end, ladies and gentlemen, ClearCorrect is the victim here. This is Ms. Durie's slide, and she showed that ClearCorrect has lost money in certain time periods. And that's true. That's true.

It's not because they have a bad product. You've heard and seen about documents that will be introduced where Align recognizes how good that product is and describes it as the best competitor out there in terms of Straumann and describes the material itself as a competitive threat.

ClearCorrect and the other companies shown here -- there's one company missing. The other companies shown here are suffering because of the anticompetitive conduct of Align. ClearCorrect and Straumann owe Align nothing for the patent claims because there's no infringement for these patents. None. ClearCorrect and Straumann owe zero.

But we are going to ask for compensation for the anticompetitive conduct of Align.

We will present an economist named Dr. Ray Perryman, and he will demonstrate and he will

10:41 show that even a very conservative estimate of the harm
10:41 suffered by ClearCorrect is in the hundreds of millions
10:41 of dollars because of lost sales attributable to the
10:41 anticompetitive conduct of Align. Anticompetitive
10:41 conduct that for years and years and years has been
10:41 unfairly tilting the playing field through this closed
10:41 system and these lock-in strategies.
10:41 And on top of all that, patent claims
10:41 that are not well founded. No infringement by Align --
10:41 I'm sorry, no infringement by ClearCorrect or
10:41 Straumann. And the real victim here is ClearCorrect.
10:41 This is a case, this is a case about
10:41 competition. What's fair and what's not. This is a
10:41 case about what Invisalign and Align have done to
10:42 maintain what you see here. Because if we go back one
10:42 slide, did you notice there was one company missing?
10:42 THE COURT: Counsel, you have two
10:42 minutes.
10:42 MR. MUELLER: Thank you, Your Honor.
10:42 Align. All of the numbers you see here
10:42 reflect those companies clustered at the bottom. The
10:42 missing company is Align, and Align is where Align is
10:42 not just because Align makes a good product. It does.
10:42 And credit where credit is due. Align is where Align
10:42 is because of the anticompetitive conduct.

10:42 And, ladies and gentlemen, after the evidence is in, after we have presented documents and witness testimony on all the issues in this case, we're going to return to you and we're going to ask you to right the wrongs, hold Align accountable for its anticompetitive conduct, reject, reject their baseless patent claims because there is no infringement, none, the patents in this case.

10:42 We're going to ask you to hold them accountable under federal and Texas state antitrust law for locking in customers, creating a closed system, suppressing competition, stacking the deck, and tilting the playing field.

10:43 Once you have all the evidence, we will ask you to return a verdict in favor of the defendants.

10:43 Thank you very much, ladies and gentlemen.

10:43 THE COURT: Thank you, sir.

10:43 Ladies and gentlemen of the jury, we're going to take our morning recess now. Before we part, I have a couple of instructions I'm going to give you about what to do while we're not -- while you all are together but you're not with us.

10:43 The first is you may not discuss anything about the case amongst yourselves. When we finish with

10:43 1 the trial, you'll have the opportunity to deliberate,
10:43 2 but you will have all the evidence at that point. So I
10:43 3 would ask you during the day and then when you go home
10:43 4 tonight, you can certainly tell your spouses and family
10:43 5 you were at trial and had a great judge and all the
10:43 6 stuff people say, but you can't talk about the
10:44 7 evidence. That's number one.
10:44 8 Number two, I'm told by my sons there's
10:44 9 something called social media. I'm unfamiliar with it
10:44 10 personally, but I'm told it exists. Some of you may or
10:44 11 may not engage in it. That -- it's fine for you to
10:44 12 continue to engage in it, but please don't look up
10:44 13 anything about the case on social media. And
10:44 14 especially please don't post anything about the case
10:44 15 during the trial.
10:44 16 And you're thinking, who would do that?
10:44 17 The reason I'm telling you is because someone did that.
10:44 18 And, finally, when you go home, if you're
10:44 19 tempted -- you've heard all this stuff about all these
10:44 20 amazing products. You may think, gosh, it'd be very
10:44 21 helpful for me to go do a little independent research.
10:44 22 You absolutely may not do that. The
10:44 23 lawyers have invested years in preparing the evidence
10:44 24 that they want you to hear and consider. And again, at
10:44 25 the end of the trial, I will instruct you that that's

10:44 1 the only thing that you may consider. So it would be
10:45 2 wasted time on your part to go do an independent
10:45 3 investigation.
10:45 4 Now, the good news is from now on every
10:45 5 time we break, I'm going to just say, please remember
10:45 6 my instructions, and not go through all this.
10:45 7 But with that being said, we'll have 10
10:45 8 or 15 minutes of recess. We'll take up our first
10:45 9 witness the plaintiff puts on when we return. And then
10:45 10 we'll go as close to lunch as -- as it takes us. And
10:45 11 then we'll see where we go from there in terms of
10:45 12 another witness or not.
10:45 13 So again, please don't discuss the case
10:45 14 while you're in the jury room.
10:45 15 THE BAILIFF: All rise.
10:45 16 (Jury exited the courtroom.)
10:45 17 THE COURT: Thank you. You may be
10:45 18 seated.
10:45 19 I thought the openings were very good. I
10:46 20 actually did not regret giving either of you
10:46 21 45 minutes, which I thought over the weekend I probably
10:46 22 would. And so thank you for that.
10:46 23 When we get back, we'll start with the
10:46 24 first witness, who is Dr. Derakhshan.
10:46 25 MS. DURIE: Derakhshan.

10:46 THE COURT: Okay. Is there anything we need to take up before we break?

10:46 MS. DURIE: Not from our perspective, Your Honor.

10:46 MR. MUELLER: No, Your Honor. Thank you.

10:46 THE COURT: Okay. We'll be back in -- please be back and ready to go by 11:00.

10:46 MS. DURIE: Thank you.

10:46 THE BAILIFF: All rise.

10:46 (Recess taken.)

11:03 THE BAILIFF: All rise.

11:03 THE COURT: Please remain standing for the jury.

11:03 (Jury entered the courtroom.)

11:03 THE COURT: Thank you. You may be seated.

11:03 Counsel, you may call your first witness, please.

11:03 MS. DURIE: Thank you, Your Honor. The plaintiff calls Dr. Mitra Derakhshan.

11:03 (The witness was sworn.)

11:03 DIRECT EXAMINATION

11:03 BY MS. DURIE:

11:04 Q. Good morning.

11:04 A. Good morning.

11:04 Q. Could you please introduce yourself to the jury?

A. Sure. Hello. I'm Dr. Mitra Derakhshan. I'm an orthodontist as well as Align Technology's executive vice president and chief clinical officer.

Q. How long have you worked at Align?

A. Almost 26 years.

Q. What -- what do you do? You said you're the chief clinical officer. What does that mean?

A. I really focus about teaching around the science of Invisalign. Anything also around clinical education, running the clinical studies, working with our product development team, and just in general focus on the science of Invisalign.

Q. So I want to talk about Align in a sec, but if you could initially just tell us a little bit about your own background.

A. Yeah, sure. I went to dental school at the University of Michigan. So it's getting a doctorate degree in dental surgery. And then I did a master's degree at the University of Illinois in Chicago.

Q. And what -- what is orthodontics?

A. Orthodontics is really about -- the science about moving teeth or moving teeth through bone. But since it involves bone, it's also about treating the

bite, treating the jaws, and really improving oral health.

Q. Why did you decide to go into orthodontics?

A. Well, first and foremost, I love helping people. And it was really a passion of mine to really focus on something where I could impact people's lives. And I know that really by changing a smile on someone, I can really make a difference, whether it's just from the way they present themselves, it could be the way they could, you know, better brush and floss, have better oral health.

And we all know now that that oral health, the mouth, is the gateway to the body. And I could actually make a bigger impact in the overall health of the human beings.

Q. Do you still practice as an orthodontist today?

A. I do. I occasionally practice, yes.

Q. And tell us a little bit about that.

A. Yeah. I work in an office out in Maryland, and also I do some clinical research in one of our offices out in California.

Q. And why do you still see patients if you're employed at Align?

A. Well, first, I love it. I mean, I love -- you

11:06 know, that's what I went to, you know, school for, that
11:06 passion to meet patients from all ages, whether they're
11:06 kids, teens, adults, and really make an impact.
11:06 But I also think it's important to, you know,
11:06 use the product, see what's happening in the office,
11:06 and really test a lot of what we innovate and continue
11:06 to innovate at Align.
11:06 Q. How did you come to work at Align?
11:06 A. I was studying for my dental boards, and
11:06 actually one of my classmates, who's also an
11:06 orthodontist, was telling me about this company. And I
11:06 went to visit them. They were looking for
11:07 orthodontists.
11:07 And I was just blown away and fascinated by
11:07 this new way of teeth straightening that could be
11:07 really done digitally, you know, through computers and
11:07 also through clear plastic. And it was just something
11:07 I really wanted to be a part of. Just there's a --
11:07 this new alternative to braces.
11:07 Q. How big was Align when you joined?
11:07 A. We were probably about less than 100 people or
11:07 so.
11:07 Q. And tell us just a little bit about those
11:07 early days.
11:07 A. Yeah. I mean, you know, you could imagine we

were a start-up. We were all just working together, trying to figure out how do you move teeth, how do you move teeth with plastic, just coming up with a lot of different ideas and, you know, developing the software, developing, you know, principles of tooth movement that were similar to braces.

But also just trying to educate doctors because, you know, this was a new way to teeth straightening, and we had to get out there and educate the profession about how to do this.

Q. What did Align's solution have in common with braces at that time?

A. Well, as a doctor, in the end, for me, it's about giving you the outcome that you want. And so whether I'm going to use braces, whether I'm going to use clear aligners or Invisalign, that's what's most important or what's most similar. It's getting you that quality outcome with a product that I can do based on the treatment plan that I make for you.

Q. And what was different, from your point of view, about braces and aligners?

A. Well, I think, you know, if we -- if you've seen braces and, you know, there's an aligner, the obvious is one is, you know, metal and they're glued to teeth. And the other one is, you know, clear plastic

and removable.

Q. Did the Invisalign system as it came to be involve anything other than just the aligners?

A. Oh, yes. I mean, you know, that's -- the end product or the aligner is, you know, what you end up putting in your mouth to move your teeth, but there's a whole lot of innovation and sophistication behind that.

You need software, computer software, that digitally models the teeth from beginning to end. You need manufacturing to be able to fabricate and make the aligners. There's a lot that goes into different features into the aligners so we could be able to treat all different types of cases. There's, you know, how do we get models of your teeth and processing those models. So there's a lot. It's really a full system.

Q. What about treatment planning? Can you just tell us how that works?

A. Yeah. Treatment planning is when we receive a 3D representation of the model of your teeth. We basically take your initial position based on the doctor's treatment plan of how they want to move your teeth and we map that out. We basically create like a little roadmap in a computer program, moving your teeth stage by stage or bit by bit until you get the final result.

11:10 Q. You should have a binder in front of you there. If you can turn to DTX-433 in your binder.

Can you tell us what that is?

A. Yes. This is the Invisalign system textbook. It's the first textbook on the Invisalign system.

MS. DURIE: We offer DTX-433.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

MS. DURIE: And if -- is it received? I'm sorry.

And if I could please have you publish, Mr. Smith, the first page of DTX-433.

BY MS. DURIE:

Q. And you've got a physical copy of a book next to you that's PTX-898. Can you hold that up for the jury and just explain to them what this is?

A. Yes. This is an Invisalign textbook. It's a textbook that basically talks a lot about how to use Invisalign, how -- what's the science behind Invisalign. And part of the reason why we put this textbook together, in addition to Professor Tuncay, is really a way to educate, educate our doctors on how to use our products and our innovations.

Q. Are you one of the people who wrote the book?

A. Yes. I have some chapters in the book myself.

11:11 Q. So does Align still do doctor education today?
11:11 A. Oh, definitely. I mean, education is at the core of what we do.
11:11 Q. And what is it that you do?
11:11 A. We have different forms of education. We might run large events. We have sometimes webinars. We have, you know, digital websites around education. We might have small study groups.
11:11 But education is where we, you know, help our doctors understand how to use our products, maybe treat different types of patients. They might be just treating adult patients with Invisalign, and they want to learn how to use them on kids and teens. But also since we're continually innovating and bringing out new features to market, we also spend a lot of time educating our doctors on our new features.
11:12 Q. About how much money has Align spent on clinical education and marketing over the life of the company?
11:12 A. Yeah. At least around $1.4 billion. A lot of investment.
11:12 Q. So let's talk a little bit about teeth straightening.
11:12 Just as an orthodontist at a high level, just how does that work?

11:12 A. Yeah. I mean, teeth straightening is -- you know, it's about aligning your teeth or moving your teeth to an end desired state that you want, really straightening them, but it's not just about aesthetics. There's a lot around function, your bite, improving your bite position, and ultimately making it easier for you to be able to brush and floss, keep your teeth in healthy gums, and have an overall good oral health.

Q. So for you personally in your practice as an orthodontist, what treatment options do you offer?

A. It could be braces, Invisalign. It could be a combination of both.

Q. And how do you decide whether you're going to offer braces or Invisalign or a combination of both?

A. Yeah. There's -- I mean, it's a clinical judgment. There's a lot of different factors that go into it. I talk to my patients, you know, based on, you know, what they may want. I also look at, you know, what type of treatment plan we want to attempt, and then in the end, we're going to choose whichever product is right for the patient and for that case.

Q. Why might a patient choose braces today?

A. They may for different reasons. Maybe they may feel that they might not want to wear a removable appliance. That could be just one simple example.

11:14 Q. In your own practice, how do the prices of braces and clear aligners relate to each other?

11:14 A. We price them fairly similar because ultimately, in the end, it's a way of teeth straightening. They're both appliances that I can use for teeth straightening, and so I'm really providing you the option.

11:14 Q. And what is the rough split between braces and clear aligners in your practice?

11:14 A. Yeah. I probably do about 70 to 80 percent Invisalign and maybe 20 to 30 percent braces.

11:14 Q. So let's talk a little bit more about Invisalign. And I think you've got a couple of clear plastic aligners up there on the table next to you.

11:14 Can you just hold one of them up for the jury and just explain to us what we're seeing here? This is PTX-894.

11:15 A. Yeah. This is a clear aligner, an Invisalign clear aligner, and these usually come in a series or a set. And what you do is you -- basically, they snap or snugly fit onto your teeth, and they'll slowly move your teeth aligner by aligner, which you wear maybe one to two weeks or what your doctor asked you on how to wear it, and they're going to move your teeth from where they started to the end position that your doctor

wants to get to.

MS. DURIE: Your Honor, we offer PTX-894.

MR. MUELLER: No objection.

THE COURT: Admitted.

BY MS. DURIE:

Q. So we have down here, Doctor, a model of some larger teeth. And with the Court's permission, I would ask you to step down from the witness box to be able to demonstrate this using the teeth that are here.

MS. DURIE: Would that be acceptable?

THE COURT: We're good. Yes.

MS. DURIE: Thank you.

BY MS. DURIE:

Q. So could you just explain to us what we're seeing here in this model?

A. Yeah. So this is an example of --

Q. I can hold it.

A. So this is a set of teeth, and this is a representation of the --

THE COURT: I don't think that's on.

A. So this is a set -- you know, a set of teeth and a set of gums. And, for example, if you had some crooked teeth, you came in and you wanted to get your teeth straightened, you know, we would have a discussion about it. We would take a 3D model of this,

send it. And then once the aligners are fabricated, you'll receive a set of aligners.

THE COURT: Ma'am, if you'll slow down just a little bit.

THE WITNESS: Keep talking. Is that better?

THE COURT: If you'll just slow down a little. Thank you.

THE WITNESS: Yes. Thank you.

A. Then we'll take -- you'll place the aligner, and you can see that using some gentle constant force or pressure, which is how we move teeth, whether through braces or aligners, through that gentle constant pressure we will slowly move your teeth into place.

Now, this is just one aligner, but you could imagine you have a series of these, and they're slowly, gently putting pressure and moving your teeth until they become straight.

BY MS. DURIE:

Q. Great. Thank you.

Thank you. So from a patient perspective, just can you walk us through the process of getting Invisalign?

A. Yeah. Sure. You know, if you're interested,

usually what happens is, you know, you'd go to a doctor's office, a dentist or an orthodontist. We probably start with a dental exam, asking you, you know, what you want to change about your teeth. We might take some x-rays, and we have a conversation. And we talk to you about, you know, your different options, put together a treatment plan, and then decide if we want to treat you with braces or Invisalign.

Q. Does the dentist or orthodontist take an impression of your teeth?

A. Yes. If we -- we're going to start treatment, we can take an impression, which is a physical impression. So maybe some of you have had dental work done, maybe a crown or a bridge. You might remember a dentist sometimes puts some goop into a tray and sticks it in your mouth for about two minutes to form and it's to kind of harden up. You could have an impression done like that.

Q. And is there an alternative way to have the equivalent of an impression of your teeth?

A. Yeah. I mean, with innovation and technology, now there's scanners that are available where essentially you could do that digitally or through a digital impression.

MS. DURIE: And if I may approach,

11:19 Your Honor, just to move this around.
11:19 BY MS. DURIE:
11:19 Q. If I could direct your attention to PTX-893, can you just tell us what that is?
11:19 A. Yeah. That's an iTero scanner.
11:19 Q. And what does that do?
11:19 A. You can see there's a computer screen and then a wand, and you will take the wand and essentially we take a picture of your teeth using some cameras. And you'll see a 3D model, a representation of your teeth, on that computer screen.
11:19 Q. What happens once the treatment plan is ready?
11:19 A. Once the treatment plan is ready, I as the doctor will see the treatment plan in software called ClinCheck software. I'll get a chance to review it. I can make any changes that I want. And once I'm ready, I approve -- approve that treatment plan.
11:20 Q. Can anyone prescribe Invisalign?
11:20 A. No. You need to be a certified dentist or an orthodontist.
11:20 Q. And other than ordering Invisalign, is there anything else this scanner can be used for?
11:20 A. Oh, yeah. Lots of stuff. You know, it's -- it's a great scanner. I actually love the scanner. You can just get a 3D model and use it a lot for

patient education, patient visualization.

One thing we can do is we can take, you know, your scan, for example, if you come to visit us regularly, and show you changes that are going on maybe with your gum health.

I use it -- I can use it to order retainers from labs. I can use it for other clear aligners. I'm not -- I'm not a dentist per se, but I know the dentists that I work with, they use it to order restorative work.

So, you know, you could do a lot with that -- a scanner.

MS. DURIE: If we could please put up PDX-2.4 demonstrative.

BY MS. DURIE:

Q. Can you please tell us what we're seeing here on the screen, and it should be up on your screen.

A. Yes. This is just a snapshot of a timeline of the Align innovations over the years.

Q. There's a reference there to Invisalign G3. Can you explain what that is briefly?

A. Yeah. That was one of our early innovations around optimizing the force systems in how do we move teeth. You know, it's -- we want to move teeth as effectively and as comfortably on patients as possible.

11:21 Q. Now, briefly with respect to the material that these aligners are made of, there's a reference here in 1999 to PC30. Can you just briefly tell us what that was?

11:21 A. Yeah. PC30 was the first material that was used to move teeth.

11:22 Q. How was that?

11:22 A. It was an okay material. It -- it had a lot of cracking. It broke a lot. It moved teeth okay. It wasn't as effective as we would have liked.

11:22 Q. I see then in 2001, there's a reference to EX30. What was that?

11:22 A. Yeah. That was the next material that we used to move teeth.

11:22 Q. And how did that do?

11:22 A. It was okay. It was a single-layer material. It moved teeth, but we knew that there's got to be a better way to move teeth. And really, we're -- moving teeth is all about gentle constant force. And we were looking at how can we move teeth that same way that you can move it with braces.

11:22 Q. If we move forward to 2013 and the SmartTrack material, what was the significance of that from a clinical perspective?

11:22 A. Oh, this was a breakthrough. It was -- it --

you could see the impact on the predictability of tooth movement and the efficacy in the way it could move teeth, but also in the way that the material would fit, the way the material would feel, and even just the comfort of the material from patients.

Q. Now, did Align test SmartTrack before making it available to the public?

A. Yes.

Q. Were you involved in those clinical trials?

A. Yes.

Q. How many patients were treated in those clinical trials?

A. Over 1,000 patients.

Q. And were the trials successful?

A. Yes.

Q. Can you tell us a little bit about what your personal reaction was when you saw the results of those clinical trials?

A. Yeah. I think we were all excited and actually amazed. I mean, you know -- you know, our R&D teams spend eight years. They test hundreds of materials. And you go -- you go to a clinical trial, and you see the results and you're like, wow, we have this great material that's going to make patients' lives better. It's going to make treatment more

efficient for them. It's going -- it's more comfortable for them.

And so it's super exciting.

Q. Do you know how much money Align has invested in research and development over the life of the company?

A. Yeah. Over $2 billion.

Q. That was billion with a B?

A. Yes, billion with a B.

Q. Has Align received any United States patents for its innovations?

A. Yes. We have actually over 400 patents.

Q. If I could ask you to turn in your binder to JTX-78, what do we see here?

A. This is a website in which we have the list of our patents for the Invisalign system, which is our clear aligner system, as well as our iTero scanner.

MS. DURIE: We offer JTX-78.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

MS. DURIE: If we could please publish the first page.

BY MS. DURIE:

Q. I see here there's a heading for Invisalign and then a list of patents. What are we looking at

here?

A. This is the list of patents that are basically covered for the Invisalign system as well as our SmartTrack material.

MS. DURIE: And if we could flip forward to Page 3, please.

BY MS. DURIE:

Q. I see there a list, says the iTero, and there's a list of patents. What are we looking at here?

A. Same. This is our public page in which -- is available that lists all of our patents around our scanners and our scanning technology.

Q. And does Align tell people about this web page?

A. Yes, we do.

Q. Could your turn in your binder to PTX-1269?

Do you see where I am?

A. Yes.

Q. What is PTX-1269?

A. This is a use and care instructions that come with your set of aligners.

MS. DURIE: We offer PTX-1269.

MR. MUELLER: No objection.

THE COURT: Admitted.

MS. DURIE: And if we could please go to the bottom of Page 13 and publish that.

BY MS. DURIE:

Q. What do we see here?

You can see it on the screen. It's on the screen.

A. This shows basically our CE marking or a lot of our regulatory marking, as well as you could see a direct link or URL to our patent page, our patent marking.

Q. So the product insert directs people to the website?

A. Exactly.

Q. Can you please turn in your binder to PTX-1338?

Tell me when you're there.

A. Yes.

Q. What is this?

A. This is the iTero user manual.

MS. DURIE: We offer PTX-1338.

MR. MUELLER: No objection.

THE COURT: Admitted.

MS. DURIE: And if we can please turn to Page 3 and publish Page 3.

BY MS. DURIE:

Q. What are we seeing here?

A. Yes. Similar to what we just saw with Invisalign, but this is for our scanning. It shows the same, the URL and how to take a look at all of our patents around our scanning technology.

Q. And if you can please turn in your binder to PTX-1141, 1148, and 1149. What are these?

A. These are many -- these are many of the awards that we've received for our Invisalign system as well as our scanner system, but I think what we're most proud of is these are a lot of peer-reviewed awards.

So these are industry peer-reviewed awards that have basically, you know, honored our technology and our innovations.

MS. DURIE: We offer PTX-1141, 1148, and 1149.

MR. MUELLER: No objection.

THE COURT: Admitted.

MS. DURIE: And if we could please show PDX-2.5.

BY MS. DURIE:

Q. Dr. Derakhshan, is this some of the awards that Align has won?

A. Yes.

Q. Now, I want to --

11:27 MS. DURIE: We can take that down.

BY MS. DURIE:

11:27 Q. I want to talk to you for a minute about competition. What other products compete with Invisalign aligners?

11:27 A. Well, you know, it's first and foremost braces. It's about teeth straightening, right, and the choice that doctors have to teethen (sic) straight or patients have to straighten teeth.

11:28 Q. Are you familiar with other clear aligner companies other than Align?

11:28 A. Yes, I am.

11:28 Q. What are some of those companies?

11:28 A. Angel Aligner, Spark, ClearCorrect, uLab.

11:28 Q. Are those products sold in the U.S.?

11:28 A. Yes.

11:28 Q. Now, where is Straumann located?

11:28 A. Straumann's based out of Switzerland.

11:28 Q. Where do they have facilities?

11:28 A. They have facilities all around the world, you know, including Costa Rica, Poland.

11:28 Q. Does Align have a facility in Costa Rica?

11:28 A. Yes. We have a facility in Costa Rica.

11:28 Q. Where is Straumann's facility?

11:28 A. Very close to ours.

11:28 Q. Does Align have a facility in Poland?
11:28 A. Yes.
11:28 Q. Where is Straumann's facility in Poland?
11:28 A. Very close to ours. In fact, they tried to come into the same building as our own building.
11:28 Q. Where -- where is that in Poland?
11:28 A. It's in Breslau, or sometimes called Wroclaw.
11:29 Q. Big city?
11:29 A. No. It's not a very big city. I didn't know it.
11:29 Q. Now, I want to go back and talk for a minute about your practice and your use of the scanner. What kind of scanner does your practice have?
11:29 A. We have iTeros.
11:29 Q. Do other doctors in your practice use other aligners other than Invisalign?
11:29 A. Yeah, they do.
11:29 Q. How does that work?
11:29 A. Well, they just -- they take an iTero scan, and they submit it through the -- it's called an STL file. It's an industry standard file. You just export it, and you could send it to any lab you want.
11:29 Q. Have you heard any complaints in your practice about that?
11:29 A. No. Never.

11:29 Q. Why do you -- do you prescribe Invisalign or do you prescribe other clear aligners?

11:29 A. I prescribe Invisalign mainly because, you know, I work for Align, but mainly because I actually think it's the best product out there.

11:29 Q. Do any of your patients specifically ask you for Invisalign?

11:29 A. Yeah, they do. I mean, there's awareness around Invisalign as a -- as a brand, as a product out there.

11:30 Q. And why do you say you think Invisalign is the best?

11:30 A. Well, I mean, the years of innovation, the focus really on quality, getting excellent treatment outcomes, and all the pursuit of innovation that we do is really just about how can we bring a better way or another way to teeth straightening for people and the impact that that has on their lives.

11:30 Q. So what makes you the happiest about the work that you do?

11:30 A. You know, I kind of mentioned it, but it's really -- it's how I can impact a life. You know, I love treating kids. I love treating teens, adults, you know, anybody from 7, you know, all the way, you know, 70, 80. But you could imagine when someone gets their

11:30 teeth straightened, how before they might not have
11:31 smiled, they cover their mouth, they might have a tooth
11:31 sticking out, but you straighten their teeth, that
11:31 confidence it brings to them, the smile, the way they
11:31 start to stand, the way they start to carry themselves.
11:31 But it's much more about that. It's about the
11:31 health benefits. It's about how you can keep your gum
11:31 health better. It's about how you could prevent things
11:31 in the future like tooth loss, tooth wear, how you just
11:31 could keep your -- keep that oral health for the
11:31 longevity of your life. It's just so important.
11:31 Q. Why have you stayed with Align for 26 years?
11:31 A. I love the company. I think it's an amazing
11:31 company. It's a great place to work. There's a great
11:31 team of people. We're constantly thinking about
11:31 patients. We're constantly thinking about how do we,
11:31 you know, make things better for patients and just
11:31 looking at better ways to move teeth, better ways to
11:32 take digital impressions and just help doctors with
11:32 their practices.
11:32 MS. DURIE: Thank you, Dr. Derakhshan.
11:32 Pass the witness.
11:32 CROSS-EXAMINATION
11:32 BY MR. MUELLER:
11:32 Q. Good morning, ma'am.

11:32 A. Good morning.
11:32 Q. My name is Joe Mueller. It's nice to meet you.
11:32 A. It's nice to meet you too.
11:32 Q. I just want to make sure I'm pronouncing your last name. It's Derakhshan?
11:32 A. Yes. You got it.
11:32 Q. Thank you. Dr. Derakhshan.
11:32 Dr. Derakhshan, you have been at Align for about 25 years or so; is that right?
11:32 A. Almost 26. Yes.
11:32 Q. And you are Align's chief clinical officer, correct?
11:32 A. Correct.
11:32 Q. You are an executive vice president?
11:33 A. Yes.
11:33 Q. And you are part of Align's executive management team, true?
11:33 A. Yes.
11:33 Q. And, Dr. Derakhshan, you work with the chief executive officer of Align, a gentleman named Joe Hogan, true?
11:33 A. Yes.
11:33 Q. Now, you were asked by Align to serve as the very first witness in this trial, right?

11:33 A. Yes.
11:33 Q. And were you here for the opening statements?
11:33 A. Yes. I was.
11:33 Q. Okay. Let me ask you a few basic questions before we get into some of the details here.
11:33 You are a practicing orthodontist, as you said?
11:33 A. Yes.
11:33 Q. And I assume you would agree that for orthodontists, all things being equal, more treatment options is a good thing?
11:33 A. Yes.
11:33 Q. And I think you'd also agree, and you tell me if you do disagree or agree, that all things being equal, lower prices for dental treatments is a good thing?
11:34 A. Can you elaborate a little bit about when you say "all things being equal"?
11:34 Q. Products of equal quality --
11:34 A. Uh-huh.
11:34 Q. -- price -- lower prices is a good thing, right?
11:34 A. Yeah. It can be. It can be.
11:34 Q. And would you also agree with me, Dr. Derakhshan, that it's important, it's important in

11:34 the dental industry that you are part of that products are offered on a level playing field?

A. It depends. I think in the end it's about patients and their treatment plan.

Q. Well, Dr. Derakhshan, if you could please, yes or no, do you think it's important that companies in the clear aligner industry compete on a level playing field?

A. I think it's about the teeth-straightening industry, but yes.

Q. Well, ma'am, if you could, is it important in the clear aligner industry for companies to compete on a level playing field?

A. Yes.

Q. Now, do you think that locking in doctors to a particular treatment approach is consistent with a level playing field?

A. Well, as a doctor, I'm not aware of any locking in of doctors. I mean, we're doctors. We have choices in the treatments we can provide.

Q. Well, Dr. Derakhshan, you've been at Align for over 25 years, and you're on the executive management team, right?

A. Yes.

Q. And you know, you know that Align has taken

steps to lock in doctors to Invisalign and the iTero scanner, true?

A. No. I disagree with that.

Q. All right. Do you think as a general matter, as a general matter, that a closed product system is consistent with a level playing field?

A. No. I disagree with that.

Q. So you think a closed system is consistent or inconsistent with a level playing field?

A. Yeah. Inconsistent.

Q. Right. So we can agree that a closed system is inconsistent with a level playing field, right?

A. Well, it depends on what you're talking about in that closed system and around, you know, which factors.

Q. Well, again, if you could, as a general matter, is a closed system, closed system, consistent or inconsistent with a level playing field?

A. I do -- I think it depends on the circumstances.

Q. All right. Well, we'll get into some details.

A. Okay. Thank you.

MR. MUELLER: Let's put up DDX-1.4, if we could.

BY MR. MUELLER:

11:36 Q. And this is a demonstrative that I used in my opening statement just showing an overview of the treatment process for clear aligners.

Do you see this, Dr. Derakhshan?

A. Yes. I do.

Q. And just to be clear on one thing right off the bat, Align is not here to say that the patents in this case cover any use of clear dental aligners, correct?

A. Could you repeat that?

Q. Sure.

A. Yes.

Q. Align is not here to say -- to tell this jury that the patents in this case cover any possible use of clear dental aligners, right?

A. Oh, yes.

Q. In fact, Align's position is that these are very particular patents to -- directed to particular structures for aligners and scanners, right?

A. Well, I'm not the patent attorneys. I'll leave that to them.

Q. Fair enough.

But, Dr. Derakhshan, you would agree with me, Align is not saying it owns the entire field of clear aligners, right?

11:37 A. Well, correct.
11:37 Q. Okay. Now, here, we have various options. We have the discussion of treatment, where the doctor can discuss various treatment options with a patient.
11:37 Do you see that?
11:37 A. Yes. I do.
11:37 Q. And that happens, right?
11:37 A. Yeah.
11:37 Q. We have the scan of the teeth. And do you see there's the intraoral scanner? That's sort of a wand that goes in the patient's mouth, right?
11:37 A. Yes.
11:37 Q. And that wand is used to scan the topography of the teeth in the mouth?
11:38 A. Yes.
11:38 Q. And that wand is connected to a console, correct?
11:38 A. Yes. To a screen, yeah.
11:38 Q. Right. So the console is part of the scanner, right?
11:38 A. Yes.
11:38 Q. All right. Then we have some material which is used in the aligners, and there's various types of materials that can be used in these clear aligners, true?

11:38 A. Yes.
11:38 Q. And those materials are formed into the particular formation that is designed for that particular patient, right?
11:38 A. Well, yeah. It goes through a manufacturing process. I'm not the expert in the forming of them.
11:38 Q. Fair enough.
11:38 A. Yes.
11:38 Q. Now, Ms. Durie asked you a few questions about Straumann and Straumann offices in various parts of the world, as well as Align offices in various parts of the world.
11:38 Do you recall those questions?
11:38 A. Yes.
11:38 Q. Now, you know that what's at issue for the aligners that are accused of infringement in this case, the aligners, are ClearCorrect aligners, right?
11:38 A. Yes.
11:38 Q. ClearCorrect aligners that use a material called Zendura FLX, true?
11:39 A. Yes.
11:39 Q. The Zendura FLX comes from Bay Materials, right?
11:39 A. Yes. As far as I'm aware.
11:39 Q. And you understand Bay Materials offers that

11:39 Zendura FLX to anyone in the industry, true?
11:39 A. Well, I don't -- I don't know the business
11:39 practice of Bay Materials, but yes.
11:39 Q. Okay. And, ma'am, did you know that every
11:39 single, every single ClearCorrect aligner accused of
11:39 infringement in this case is not made in the locations
11:39 you mentioned; they're made in Round Rock?
11:39 A. I was not aware.
11:39 Q. And you understand ClearCorrect has a
11:39 manufacturing facility at its headquarters in Round
11:39 Rock, and that's where the aligners that are accused of
11:39 infringement in this case are made?
11:39 A. Okay.
11:39 Q. And you have no reason to dispute that?
11:39 A. Unless you have another facility that I'll --
11:39 you know, the teams could focus on that.
11:39 Q. Ms. Durie asked you a few questions about
11:40 competition.
11:40 Do you recall that?
11:40 A. Yes.
11:40 Q. I want to go into some of the competition
11:40 issues. And if you could, ma'am, please turn to Tab 26
11:40 in your binder. This is DTX-1388.
11:40 A. Do you know what tab number it is?
11:40 Q. Tab 26.

A. 26.

Q. And take your time, and let me know when you're there.

A. Okay. Yes.

Q. And do you see in the cover here, it says "Invisalign," and then it says: You go beyond?

A. Yes.

Q. And below that it says "KO19," which I presume stands for Kickoff 2019.

Do you see that, Dr. Derakhshan?

A. Yes.

Q. I'm going to ask you some questions about it.

MR. MUELLER: Before I do, Your Honor, I offer this. This is DTX-1388.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. Let's turn to Slide 8, if we could. And this says: Competition is here.

Do you see that?

A. Yes.

Q. And various clear aligner companies are listed on this slide, correct?

A. Yes.

Q. Now, and this is competition for clear

aligners that would compete against Invisalign, true?

A. Well, they compete. It's around teeth straightening.

Q. Ma'am, these are clear aligner companies --

A. Yeah.

Q. -- that compete against Invisalign, true?

A. Yes.

Q. All right. Now, if we go to the page right before this, we see this slide here. This says: Build the moat around your business.

And the build your moat around your business was a directive from Align to its sales personnel who were the audience for this presentation, right?

A. Well, I wasn't there. So I don't know if that was the directive.

Q. Well, you have no reason to dispute this was a sales presentation or presentation to sales folks at Align, right?

A. Yes.

Q. Okay. And let's look at the right-hand corner. Do you see where it says: Confidential - for internal use only?

A. Yes.

Q. And that was part of the original presentation. You have no reason to dispute that

11:42 1 either, right?
11:42 2 A. Well, it's part of -- yes, here.
11:42 3 Q. Okay. And if we look at this picture, we see
11:42 4 a castle and a moat with the directive "build the moat
11:42 5 around your business."
11:42 6 Now, Dr. Derakhshan, you know the "moat" here
11:42 7 is referring to taking steps to keep doctors and
11:42 8 patients using Invisalign. That's the business, right?
11:42 9 A. No. I wouldn't know if that's what they're
11:42 10 referring to.
11:42 11 Q. Okay. You don't know one way or the other?
11:42 12 A. Right. Correct.
11:42 13 Q. Okay. And you see the moat. The moat is to
11:42 14 keep out other companies to keep them from having the
11:42 15 same access to doctors and their patients. You know
11:43 16 that, right?
11:43 17 A. No, not necessarily. A moat could be about
11:43 18 creating competitive advantage to making products and
11:43 19 services better so that there's a better product out
11:43 20 there for patients.
11:43 21 Q. So, Dr. Derakhshan, just so we're clear with
11:43 22 this jury, your testimony to this jury is that the
11:43 23 moat, the moat around the castle, was to promote and
11:43 24 improve competition.
11:43 25 Do I have that right?

11:43 A. No. I mean, that's the way I look at a moat.
11:43 Q. So you look at a moat as promoting competition?
11:43 A. I look at a moat as a way that -- as a business could look at, a competitive advantage, to look at building products and value proposition and drive unique selling points in the industry.
11:43 Q. Now, you understand in a level playing field where everyone can compete, all the companies have the same access to the doctors, right?
11:43 A. Yes.
11:43 Q. They get to compete on the merits of their products, quality, and price, right?
11:43 A. Yes, unless somebody's infringing on your patents.
11:43 Q. Well, Dr. Derakhshan, or unless someone builds a moat, builds a moat around the marketplace to keep other companies from having the same access to doctors. Isn't that true, ma'am?
11:44 A. No. I mean, as I said, you --
11:44 THE COURT: Ma'am, when your lawyer asks you questions, you get to talk as long as you want.
11:44 THE WITNESS: Oh, sorry.
11:44 THE COURT: When opposing counsel's asking you questions, I'd like you to answer his

directly. Okay?

THE WITNESS: Okay. Thank you.

BY MR. MUELLER:

Q. Dr. Derakhshan, the moat, the moat that Align was seeking to create was to prevent competition, not promote competition; isn't that true?

A. No.

Q. Let's take a look at DTX-152. This is Tab 5 in your binder.

Are you there, ma'am?

A. Yes.

Q. Okay. This is an e-mail between some executives at Align, Daniel Diederich and Tim Mack.

Do you see that?

A. Yes.

Q. And Mr. Diederich is still employed at Align Technologies, correct?

A. Yes.

Q. He's the senior director of global business development and strategy, right?

A. Yes.

MR. MUELLER: Your Honor, I offer this.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

11:45 Q. So let's look at the first e-mail in this chain where Mr. Diederich says: As we're preparing for serious competition in three to five years, an iTero customer is a locked-in Invisalign customer.

Do you see that?

A. Yes.

Q. And he says explicitly that an iTero customer -- and that's the scanner that Align sells, the iTero. Right?

Do you see that?

A. Yes, I do.

Q. ITero is the scanner, and he was saying an iTero customer, a scanner customer, is a locked-in Invisalign customer, right?

A. Well, I see it's written there.

Q. And so he's saying that someone who buys this iTero scanner with the console is locked in as an Invisalign customer, true?

A. No. I mean, I don't think -- I wasn't -- I didn't write the e-mail. So I don't know if that's what he meant.

Q. Okay. And I'm not asking you to get inside his head. I'm not asking you to get inside his head.

But do you agree -- do you agree with what the senior director of global business development and

strategy said, that an iTero customer is a locked-in Invisalign customer?

A. No, I don't.

Q. You disagree with him?

A. Yeah.

Q. Now, he went on to say that if someone buys another scanner, they're not locked in to Invisalign.

Do you see that?

A. Yes.

Q. Do you agree with that?

A. No, not necessarily. I see them as independent.

Q. Let's go to Tab 27 in your binder. This is DTX-46.

And take your time and let me know when you're there.

A. Yes.

Q. This is an e-mail chain among various executives including the chief executive officer, Joe Hogan, right?

A. Yes.

MR. MUELLER: Your Honor, I offer it.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

11:47 Q. Let's take a look at the second e-mail in the first page. And do you see the subject line says "3Shape"?

11:47 A. Yes.

11:47 Q. And you know 3Shape is a company that made its own intraoral scanner, right?

11:47 A. Yes.

11:47 Q. And at one time Align allowed for interoperability of Invisalign with 3Shape, right?

11:47 A. Yes.

11:47 Q. It doesn't any longer, though, correct?

11:48 A. Because there was some infringements.

11:48 THE COURT: Ma'am?

11:48 A. Yes. Correct.

11:48 THE COURT: Answer his questions directly, please.

11:48 A. Correct.

11:48 MR. MUELLER: And I move to strike the last portion of that answer, Your Honor.

11:48 THE COURT: Granted.

11:48 BY MR. MUELLER:

11:48 Q. Dr. Derakhshan, Dr. Derakhshan, if you look at the second sentence here from -- this is Joe Hogan, the CEO: From my position, I feel we are empowering or subsidizing other companies to compete against us in

clear aligners.

Do you see that, Dr. Derakhshan?

A. I do.

Q. He said: They say -- they can say to docs -- doctors, right, Dr. Derakhshan?

A. Yes.

Q. They can say to docs, you can do Invisalign or other clear aligner companies. We have such a huge share of the market, why do we want to give them this option?

Do you see that, Dr. Derakhshan?

A. Yes.

Q. Now, he's saying right there in black and white, the CEO, "huge share of the market."

Do you see that?

A. Yes.

Q. Now, he didn't say -- he didn't say "huge share of the market, which also includes wire braces and anything else that might straighten teeth," right?

A. Right.

Q. He said: Huge share of the market. And he was referring, as best you can tell, to clear aligners, right?

A. No.

Q. All right. Now, let's go to Tab 28 in your

11:49 binder.

And take your time and let me know when you're there.

A. Yes, I'm there.

Q. And this is DTX-141. This is another e-mail chain among executives at Align, including Mr. Diederich we talked about earlier, right?

A. Yes.

Q. And Mr. Diederich again was the senior director -- let me make sure I get his title correct -- global business development?

A. Yes.

Q. And strategy, right?

A. Yes.

MR. MUELLER: Your Honor, I offer the e-mail.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. The title is, if we go to the first page, IOS Market Update.

Do you see that?

A. Yes.

Q. And I want to go to the third e-mail in this chain.

MR. MUELLER: If we go down a little bit here.

There we go.

BY MR. MUELLER:

Q. So here, we have Mr. Diederich corresponding with Daniel Stubbs. And do you know who he is?

A. Yes. He was a former employee.

Q. And what was his position, Mr. Stubbs?

A. He was a -- in global business development.

Q. Global business development.

So we have two senior executives at Align corresponding, right?

A. Yes.

Q. And one -- Mr. Diederich said to Mr. Stubbs: If you want to do Invisalign, you're forced to buy iTero and live with it.

Do you see that?

A. I see it's written there.

Q. And right above that Mr. Stubbs said: I think that pretty much sums it up, Dan.

Do you see that?

A. Yes.

Q. Now, in fact, over time, Align did adopt a policy. It told doctors that if the doctors wanted access to Invisalign, they had to purchase an iTero

11:51 1 scanner, correct?
11:51 2 A. No. Not necessarily.
11:51 3 Q. Not necessarily is your testimony?
11:51 4 A. Yes.
11:51 5 Q. Okay. So your testimony is that the iTero and
11:51 6 Invisalign were not being used for lock-in purposes.
11:51 7 Do I have that right?
11:51 8 A. Yes.
11:51 9 Q. And your testimony is that Align was using an
11:51 10 open system as opposed to a closed system.
11:51 11 Do I have that right?
11:51 12 A. Yes.
11:51 13 Q. Let's go to Tab 29 in your binder, which is
11:51 14 DTX-185.
11:51 15 And please let me know when you're there,
11:52 16 ma'am.
11:52 17 A. Yes.
11:52 18 Q. This is -- DTX-185 is another e-mail among
11:52 19 executives, including the CEO, Joe Hogan, right, ma'am?
11:52 20 A. Yes.
11:52 21 MR. MUELLER: I offer it, Your Honor.
11:52 22 MS. DURIE: No objection.
11:52 23 THE COURT: Admitted.
11:52 24 BY MR. MUELLER:
11:52 25 Q. And do you see this is between a gentleman

named Raj Pudipeddi and Mr. Hogan?

A. Yes.

Q. Who is Mr. Pudipeddi?

A. He was a former employee at Align.

Q. So let's look at the second -- and what was his position when he was there?

A. He was the chief marketing officer in business development.

Q. Let's look at what he said on April 10th, 2023. This is three years ago. And let's look at the second paragraph. And let's have in mind that I just asked you whether Align used an open or a closed system. And you said "open," right, ma'am?

A. Yes.

Q. Now, here's Mr. Pudipeddi talking to Mr. Hogan, says: Joe, I think I framed the two sentences together in a confusing way. My miss. My point is that iTero and Invisalign are in a closed ecosystem and hence tightly coupled. If we delink them by offering interoperability on other scanners, it dilutes our unique position in my view.

Do you see that?

A. Yes.

Q. And so Mr. Pudipeddi, in an e-mail to the chief executive officer of Align, was saying, with all

11:53 due respect, Dr. Derakhshan, the exact opposite of what
11:53 you said 30 seconds ago; isn't that true?
11:53 A. Not necessarily.
11:53 Q. Okay. Well, let's see what Mr. Hogan said in
11:53 response.
11:53 MR. MUELLER: If we could scroll to the
11:53 top of the page.
BY MR. MUELLER:
11:53 Q. Mr. Hogan in response said: I have slowly
11:53 come to this conclusion too, Raj. Thanks. We both
11:53 cannot be wrong.
11:53 Right?
11:53 A. Yes.
11:53 Q. Mr. Hogan did not say, Mr. Pudipeddi, I think
11:53 you have it wrong. We have an open system.
11:53 Mr. Hogan said to Mr. Pudipeddi, I have come
11:53 to the same conclusion, right?
11:54 A. As it's stated here, yes.
11:54 Q. So as stated here in an e-mail between the
11:54 very tip-top of the company, the chief executive
11:54 officer, we have one executive telling another: My
11:54 point is iTero and Invisalign are in a closed system.
11:54 Do I have that right so far?
11:54 A. Yes.
11:54 Q. And when you have the chief executive officer

11:54 saying he came to the exact same conclusion, do I have that right too?

A. Yes.

Q. And not only that, Mr. Pudipeddi said: If we delink, delink iTero and Invisalign by offering interoperability on other scanners, it dilutes our unique position.

Do you see that?

A. I do.

Q. And Mr. Hogan didn't disagree with that either, did he?

A. Well, I don't know what Mr. Hogan was disagreeing to.

Q. Well, he was not disagreeing with anything, as far as I can tell. He said: I have slowly come to this conclusion too, Raj.

Right?

A. That's what it says there.

Q. Now, Dr. Derakhshan, you talked at the beginning of your testimony about the benefits of clear aligners, which are, of course, real, right?

A. Yes.

Q. And it's important to patients to have good options at good prices, true?

A. Yes.

11:55 Q. And Align, which makes a good quality product, could just go out and offer it to the marketplace on an open basis, right?

A. Sorry. Could you repeat that?

Q. Sure. Align -- let me make a more specific question.

There's nothing stopping Align from going to the marketplace and telling doctors: We'll let you use whatever scanner you want with Invisalign. There's nothing stopping them from doing that?

A. Well, there's the quality and the quality of the care that we need or the quality that we need.

Q. Dr. Derakhshan, there's nothing stopping Align from offering its products on an open system basis, true?

A. Yes.

Q. But here, we have Mr. Pudipeddi saying, iTero and Invisalign are in a closed system. And we have the chief executive officer saying, I have come to the same conclusion, true?

A. It's what's written there, but I don't have the interpretation of what that system is.

Q. But you would agree with me that on this page, here, we have the CEO -- I'm going to read the words so we make sure we get it exact: I have slowly come to

this conclusion too, Raj.

He said that, the chief executive officer?

A. Yes. That's what he wrote.

Q. All right. Let's go to Tab 6 in your binder, which is DTX-1059.

Are you there, ma'am?

A. Yes.

Q. This is titled Align's Strategy - November 2019, Global Business Strategy Team.

Do you see that?

A. Yes.

MR. MUELLER: Your Honor, I offer it.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. Let's go to the third page which begins "Strategies."

So right below that, it says: What. Invisalign & iTero.

Do you see that?

A. Yes.

Q. So we have Invisalign, the dental aligners, and iTero, the scanner, right?

A. Yes.

Q. First bullet point says to "continue to push

for international growth." Right?

A. Yes.

Q. And the second one says what? Why don't you read the second titled bullet point to us.

A. Lock in DSOs.

Q. "Lock in DSOs" in bold, right?

A. Yes.

Q. So in this strategy presentation from 2019, Align itself described its strategy of locking in DSOs.

Do you see that?

A. Yes.

Q. And DSO is what?

A. Dental service organization.

Q. And this continues. If we keep reading: Continue with a dedicated team focused on DSOs locking in the biggest players with exclusive deals.

Do you see that?

A. Yes.

Q. And this is another example of Align engaging in a lock-in strategy. Can we agree on that?

A. No. Not necessarily.

Q. Now, you say you disagree. The top of this says "strategy," right?

A. Uh-huh. Yes.

Q. And the second bullet point says "lock in,"

11:58 right?
11:58 A. Yes.
11:58 Q. This is a lock-in strategy, isn't it?
11:58 A. Well, the DSO has a choice.
11:58 Q. The Align goal was a lock-in strategy, true or false?
11:58 A. I don't -- I'm not privy of what the Align goal was.
11:58 Q. Let's go to DTX-1483. This is Tab 1 in your binder.
11:59 A. Yep.
11:59 Q. Okay. And this is titled Global Advantage Reboot Project Update & Review, dated May 22nd, 2016.
11:59 Do you see that, Dr. Derakhshan?
11:59 A. I might -- sorry. Which tab number was that?
11:59 Q. Yeah. Take your time. It's Tab 7.
11:59 A. 7. Sorry.
11:59 Q. Tab 7. And let me know when you're there.
11:59 A. Yes.
11:59 Q. Do you see the title page at the very beginning?
11:59 A. Yes.
11:59 Q. It's titled Global Advantage Reboot Project Updates & Review, the Invisalign logo, May 22nd, 2016, right?

11:59 A. Yes.

MR. MUELLER: Your Honor, I offer it.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

12:00 Q. Let's go to Page 4. And this says project advantages (sic). And it's discussing advantages for an Advantage program.

12:00 And the Advantage program is a program that Align has used with doctors, right?

12:00 A. Yes.

12:00 Q. And it offers doctors certain benefits in return for the doctors having to agree to certain terms, true?

12:00 A. Certain milestones, yes.

12:00 Q. And, Dr. Derakhshan, you would agree with me that this Advantage program was designed to create a barrier against competition?

12:00 A. No.

12:00 Q. Well, let's take a look. Right below here, a few bullet points down, it says: Creates a "barrier to switch" - protects from competition.

12:00 Do you see that?

12:00 A. Yes.

12:00 Q. Now, you just told us it's not to protect

against competition or create a barrier, but the document itself, would you agree with me, says, quote: Creates "barriers to switch" - protects from competition?

A. Yes. I didn't write the document. Yes.

Q. Well, Dr. Derakhshan, you're not aware of anyone retracting this document and saying it was incorrect, true?

A. Yes.

Q. This is a genuine Align document, right?

A. Yes.

Q. And what was said in this genuine and authentic Align document was, quote: Create "barriers to switch" - protects from competition.

That's what it says, right, ma'am?

A. Yes.

Q. Let's go to Tab 8 in your binder. This is DTX-2821. And take your time.

And just let me know when you're there, if you could.

A. Yes.

Q. This is titled ALT Update - iTero NA.

Do you see that?

A. Yes.

Q. With the iTero logo in the top right?

12:01 A. Yes.
12:01 Q. And iTero is the scanner that Align sells?
12:01 A. Yes.
12:01 MR. MUELLER: Your Honor, I offer it.
12:01 MS. DURIE: No objection.
12:01 THE COURT: Admitted.
12:02 BY MR. MUELLER:
12:02 Q. Let's go to Slide 17.
12:02 And remember I asked you the questions about the moat a little while ago and the picture of the castle.
12:02 Do you recall those questions?
12:02 A. Yes.
12:02 Q. All right. And I think you told me the moat was for promoting competition?
12:02 A. Yes.
12:02 Q. All right. Let's go to Slide 17 at Page 18 of the document. It's titled Executive Summary.
12:02 And the idea here is the executive summary of the strategies for Align's use of this iTero scanner, right?
12:02 A. Yes.
12:02 Q. Do you see where it says: Establish Align digital workflow -- this is the last bullet point below goals -- as a competitive moat around accounts.

Do you see that?

A. Yes.

Q. That meant accounts that Align had with doctors, right?

A. I don't know what it meant.

Q. Okay. Well, you understand that Align does have accounts with doctors?

A. Yes.

Q. Align has accounts with dental service organizations?

A. Yes.

Q. And here this says: Establish the Align digital workflow.

That's referring to the workflow for the scanner and its console, right?

A. Not just the scanner and its console.

Q. Scanner's part of it. You would agree on that?

A. Could be. Yes.

Q. Okay. So establish the Align digital workflow including that scanner and its console as a competitive moat around accounts.

That's what the document said?

A. Yes. That's what's written there.

Q. And your testimony to this jury is that the

12:04 moat being referred to was to promote competition as
12:04 opposed to prevent competition.
12:04 Do I have that right?
12:04 A. Well, yes. I didn't say it in those, yes,
12:04 words, but it's not about keeping people out.
12:04 Q. Right. But again, just so we're clear with
12:04 the jury, your testimony to this jury is that a moat is
12:04 actually to promote competition instead of to prevent
12:04 Align from competition?
12:04 A. No. I mean, competition is good, as I said.
12:04 It's about how do you bring better value and
12:04 proposition. Align isn't afraid of competition.
12:04 Q. Dr. Derakhshan, if you could. The moat --
12:04 A. Yes.
12:04 Q. The moat. Your testimony is the moat was to
12:04 promote competition rather than, rather than keep the
12:04 competition out.
12:04 Do I have that right?
12:04 A. As I said, it's -- I said competition is a
12:04 good thing. It brings advantages to the industry.
12:04 MR. MUELLER: Your Honor, I'd ask if
12:05 you'd give the witness direction to please stay with my
12:05 question.
12:05 THE COURT: If I think I need to, I will.
12:05 MR. MUELLER: Okay.

BY MR. MUELLER:

Q. Dr. Derakhshan, I'll ask you one more time.

The moat. Does the moat promote competition or not?

A. It could do -- it could. It could also --

Q. Now, you know historically moats were used to keep people out?

A. Yes.

Q. And here, Align chose -- Align chose itself to use the imagery of the moat, right?

A. Well, it's just written, the word.

Q. Right. The word is written here, and there's pictures of moats in other Align documents, right?

A. The one that we saw.

Q. And again, historically moats keep people out?

A. Yes.

Q. Now, you yourself have done what has -- you are aware of Align doing what's known as competitive intelligence, right?

A. Yes.

Q. And competitive intelligence involves looking at other company's products, perhaps even doing experiments on them, and perhaps doing what's called reverse engineering, right?

A. Not reverse. I don't agree with all that.

12:06 Q. Okay. Well, you know there's nothing wrong with looking at your competitors and looking at how your product compares to them, right?

12:06 A. For things that are available, commercially available, sure.

12:06 Q. And in fact, Align routinely studies the features of products offered by its competitors, right?

12:06 A. Yes.

12:06 Q. And there's nothing wrong with that?

12:06 A. No. It's a -- it's a good thing. I mean, you want to know what's happening in the market so you can get -- make -- be better and better.

12:06 Q. So it's a good thing to know what's out there and to try to strike your own path and develop something better. That's a good thing?

12:06 A. Sure.

12:06 Q. All right. Now, you understand that the Zendura FLX material made by Bay Materials was announced to the market in 2018, right?

12:07 A. Yes.

12:07 Q. And after learning about it, Align obtained some samples of Zendura FLX to test, true?

12:07 A. Yes.

12:07 Q. And Align learned that Zendura has hard outer layers and a soft inner layer, right?

12:07 A. Well, I'm not the material expert, so I can't comment.

12:07 Q. Well, let me show you another executive presentation. If you could turn to Tab 15 in your binder, please.

12:07 A. Yes.

12:07 Q. This is an EMC presentation, right?

12:07 A. Yes.

12:07 Q. Executive management committee, and you're on that?

12:07 A. Yes, but not at this time.

12:07 Q. Fair enough.

12:07 But you recognize this type of document?

12:07 A. Yes.

12:08 MR. MUELLER: Okay. This is DTX-2867, Your Honor. I offer it.

12:08 MS. DURIE: No objection.

12:08 THE COURT: Admitted.

12:08 BY MR. MUELLER:

12:08 Q. Let's go to Slide 5. And do you see at the bottom there's a -- four bullets up, it says: Regional SWAT teams assigned to additional aligners and passes led by Mitra.

12:08 And that's you, Dr. Derakhshan?

12:08 A. Yes.

12:08 Q. Okay. Let's turn to Page 2. The second bullet -- well, first of all, this is describing where are we with two months into the year.

Do you see that?

A. Yes.

Q. And there's a summary of some of the developments that had happened two months into the year?

A. Yes.

Q. And I'd like you to look at the external developments portion of the summary.

Do you see that?

A. Yes.

Q. It says: Competition continues to ramp up.

A. Yes.

Q. And right below that it says: Bay Materials, Bay Materials' hard-soft-hard, Bay Materials' hard-soft-hard structure big threat to superiority of SmartTrack.

Do you see that?

A. Yes.

Q. Let's go to Tab 10 in your binder, which is DTX-0216. And DTX-216 or 0216 is an e-mail between Mr. Hogan, chief executive officer, and Srini Kaza. And he's the vice president of research and

development, right?

A. Yes.

MR. MUELLER: Your Honor, I offer it.

MS. DURIE: No objection.

THE COURT: You said no objection?

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. All right. So let's go to --

MR. MUELLER: Scroll down to the e-mail from Lance Johnson dated November 30th.

Page 3. There we go.

BY MR. MUELLER:

Q. This is titled Update. And do you see where it says: Just want to keep you posted on Ormco's Spark aligner.

Do you see that?

A. Yes.

Q. Ormco and the Spark product is a competitor to Invisalign, right?

A. It's a competitor to teeth straightening.

Q. And it's a -- it's a clear dental aligner, the Spark product?

A. It's a, yes, a clear aligner.

Q. And it goes on to say: We have aligners

inhouse and are conducting extensive testing, but based on initial findings, it is a triple layer material, probably a Zendura product.

Do you see that?

A. Yes.

MR. MUELLER: Let's go to Page 2.

BY MR. MUELLER:

Q. Mr. Kaza, in an e-mail on November 30th, 2018, at 6:53, Page 2.

MR. MUELLER: There we go.

BY MR. MUELLER:

Q. He says, the second sentence -- talking about materials. And he says in the second sentence: They flipped the construction. Soft layer in the middle and copolyester outside.

Do you see that?

A. Yes.

Q. So let's see what Mr. Hogan said in response. He says to the vice president of research and development: I think at this point there's not a lot of mystery on what properties a material needs to be like SmartTrack.

Now, he says: The issue is if they have copied us, if they have copied us and have a competitive material that's close to SmartTrack, we'll

12:12 have a lot of explaining to do in the market.

12:12 Do you see that?

12:12 A. Yes.

12:12 Q. By the way, Dr. Derakhshan, you yourself have no evidence -- you yourself have no evidence that Bay Materials copied SmartTrack. You yourself have no such evidence, right?

12:12 A. Well, based on I'm being here on the trial, we have evidence from the company.

12:12 Q. But you're the first witness.

12:12 A. Yes.

12:12 Q. And you yourself have no knowledge of that. You don't know Mr. Lahlouh, do you?

12:12 A. Oh, no.

12:12 Q. Okay. Now, look at the last sentence. Mr. Hogan said: Do you think we have any IP at all we could hit them with?

12:13 Do you see that?

12:13 A. Yes.

12:13 Q. All right. Let's go to Tab 12 of your binder. This is DTX-200.

12:13 A. Yes.

12:13 Q. And this is another e-mail chain that involves the CEO and the vice president of research and development, Mr. Hogan and Mr. Kaza, right?

A. Yes.

MR. MUELLER: Your Honor, I offer it.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. Let's go to the bottom of Page 4. There's a January 17th, 2019 e-mail. And let's look at the second sentence. This is Mr. Hogan writing to Mr. Kaza: How are you feeling about the Spark material?

And that's that Ormco Spark aligner, right?

A. Yeah. It says a Spark material. We don't know what material.

Q. And if you go up to see Mr. Kaza's response, he said: We're calibrating the machine with SmartTrack so we can compare with our historical material.

Okay?

MR. MUELLER: Now let's go up to the top one, right above that. It says "Mr. Hogan." And let's go to the beginning of this e-mail, if we could, a little bit up -- higher in the page.

BY MR. MUELLER:

Q. He said, second sentence: I am really worried about marginalizing ST.

Do you see that? I am really worried about

12:14 marginalizing ST.
12:14 A. Yes.
12:14 Q. And he went on to say: I thought you had
12:14 concerns about possible delamination.
12:14 And he's referring to the Spark material,
12:14 right?
12:14 A. I don't know in that -- right there if he is.
12:14 Q. Okay. Fair enough.
12:14 But then he went on to say, if we go a little
12:14 bit lower: I'm just looking or -- and that may be a
12:15 typo -- I'm just looking or any area of leverage for ST
12:15 versus this material.
12:15 Do you see that?
12:15 A. Yes.
12:15 Q. And Mr. Kaza responded, if we go up to the
12:15 top, the e-mail right below that: I agree. I am
12:15 worried about the material as well.
12:15 Do you see that?
12:15 A. Yes.
12:15 Q. And if you look a few sentences down here, he
12:15 says: I hope we will find -- this is the third
12:15 sentence down: I hope we will find -- right there --
12:15 good points of differentiation.
12:15 So Mr. Kaza was saying: I hope we find good
12:15 points of differentiation, but my concern is that this

has clearly been on people's minds for a few years now, and unless we can stop with IP, they will keep coming.

Do you see that?

A. Yes.

Q. Okay. And IP refers to intellectual property, right?

A. Yes.

Q. And patents are a form of intellectual property, true?

A. True.

Q. Let's go to Tab 13 in your binder, if we could. Here's another e-mail among the CEO and the vice president of product development, among others. This is from March of 2019. DTX-203.

Do you see that, Dr. Derakhshan?

A. Yes.

MR. MUELLER: I offer it, Your Honor.

MS. DURIE: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. So the first line in Mr. Hogan's e-mail, CEO: I'm sure you've picked up that a new SmartTrack-like plastic from Bay Materials is being sampled by our competition.

Do you see that?

12:16 A. Yes.

12:16 Q. The next paragraph, he says: Marketing has to get ready with a story on this for our docs. I need you and your team to address this with urgency.

12:17 Do you see that?

12:17 A. Yes.

12:17 Q. SmartTrack has been key in customers' minds with the performance of Invisalign versus the competition. This could be a huge issue for us if we're not ready.

12:17 Do you see that?

12:17 A. Yes, it's written.

12:17 Q. Let's go to DTX -- I'm sorry. Tab 16 in your binder.

12:17 And take your time, and let me know when you're there.

12:17 A. Yes.

12:17 Q. This is another e-mail exchange between Mr. Hogan and Mr. Kaza from February of 2019, right?

12:17 A. Yes.

12:17 MR. MUELLER: Your Honor, I offer it.

12:17 MS. DURIE: No objection.

12:17 THE COURT: Admitted.

12:17 BY MR. MUELLER:

12:17 Q. And if we go down to the second page,

12:17 Mr. Hogan says -- the title here is Spark.

12:18 Do you see that?

12:18 A. Yes.

12:18 Q. And he says to Mr. Kaza: Thanks, Srini. Do they have IP around this new product? I am wondering if we should think of buying them if they have the IP and you think this material could be an issue versus SmartTrack.

12:18 Do you see?

12:18 A. Yes.

12:18 Q. And this is raising the idea of buying Bay Materials, right?

12:18 A. I don't know that.

12:18 Q. Okay. Let's go to Tab 17, DTX-205. And actually, I'm sorry. Before we leave that one, go back to that for just one moment.

12:18 I just want to get the date clear here. This is in January of 2019, right, Dr. Derakhshan?

12:19 A. Yes.

12:19 Q. Okay. Let's go to Tab 17, if we could. This is DTX-205. This is an e-mail thread between Mr. Hogan and Mr. Pudipeddi, right?

12:19 A. Yes.

12:19 Q. And this is later in 2019 than what we just looked at, true?

12:19 A. Yes, October.
12:19 MR. MUELLER: I offer it.
12:19 MS. DURIE: No objection.
12:19 THE COURT: Admitted.
12:19 MR. MUELLER: So let's put it up here.
12:19 BY MR. MUELLER:
12:19 Q. If we look at the subject line, this is referring to a Straumann earnings call. And you understand that Straumann, in that time period, purchased Bay Materials, right?
12:19 A. Yes.
12:19 Q. So Mr. Hogan is corresponding with Mr. Pudipeddi. And let's look at the second sentence from his e-mail: I understand the material pretty well, but we will need to develop a clinical story that makes sense as to why ST -- that's SmartTrack, right? -- is better.
12:20 Do you see that, Dr. Derakhshan?
12:20 A. Well, it says "ST."
12:20 Q. And ST stands for SmartTrack?
12:20 A. Well, I can't be 100 percent sure.
12:20 Q. All right. It goes on to say: On buying them, I do not blame you. I just wanted to get this asset off the market.
12:20 Do you see that?

12:20 A. Yes.

12:20 Q. And Mr. Hogan at that point is referring to "the asset" and "just wanting to get it off the market" as Bay Materials, right?

12:20 A. I wouldn't know. I didn't write the e-mail.

12:20 Q. Let's go to Page 3. And the beginning of the e-mail from Mr. Hogan to Mr. Pudipeddi dated Tuesday, October 29th, 2019.

12:20 MR. MUELLER: And let's move up a little bit more.

BY MR. MUELLER:

12:21 Q. Do you see he's saying: Hey, Raj. Read this over.

12:21 Do you see that?

12:21 A. Yes.

12:21 Q. And he's referring to a press release in which Straumann noted the acquisition of Bay Materials, right?

12:21 Do you see that?

12:21 A. Yes.

12:21 Q. And Mr. Hogan in October of 2019 says: They are the best competitor we have.

12:21 Right?

12:21 A. Yes.

12:21 Q. And he went on to say: We missed the Bay

Materials situation.

Right?

A. Yes.

Q. And he went on to say: I am kicking myself for not being more prescriptive with the team on this.

He said that, right?

A. Yes.

Q. And he said: There's a lot that I like about this company.

Right?

A. Yes.

Q. Now, after all of these e-mails, after the analysis of Zendura FLX, at that point, at that point, Align went back to the Patent Office, true?

A. I'm not the patent expert on the team.

Q. Well, just to make clear, there's a number of patents at issue in this case that Align has sued ClearCorrect and Straumann on, right?

A. Yes.

Q. And you're not here to provide any testimony to the jury on those patents, correct?

A. Correct.

Q. Not on patents that relate to materials. You're not here to provide any testimony on those?

A. Well, I am based on what I'm talking about

here.

Q. Well, if you're ready, I'm ready to ask you some questions --

A. Yes. I'm not -- talking about the specifics of the patents, that's for the patent team and the patent experts.

Q. You're not here to talk about the specifics of the materials patents, correct?

A. Correct.

Q. You're not here to talk about the specifics of the scanner patent, right?

A. Correct.

Q. Now, you do -- you would agree, though, I assume, that the Align patents are patents -- let's focus on the materials ones -- that place materials in the right place to create aligners that are useful for doctors and patients, true?

A. Not necessarily.

Q. The Align -- the Align technology is directed to putting aligners in the wrong place?

A. Well, at the -- it's about the combination of the materials.

Q. Right.

A. It doesn't have the specifics.

Q. And your position, Dr. Derakhshan, is that

12:23 Align makes high-quality dental aligners, true?
A. Yes.
Q. With the layers in the right place?
A. Well, again, I can't comment. I'm not the material expert in how that layering works.
Q. From your perspective as an orthodontist, are the aligners in Invisalign in the right place?
A. They're -- it's -- based on the final aligner, it's the best aligner that we see.
Q. So let me ask you, if we could, to go to Tab 24 in your binder, which is PTX-1091.
A. Yes.
Q. And this is an Align presentation, an Invisalign logo at the top titled A Material Difference.
Do you see that?
A. Yes.
MR. MUELLER: Your Honor, I offer it.
MS. DURIE: No objection.
THE COURT: Admitted.
BY MR. MUELLER:
Q. Let's go to Page 1. Do you see it says "Aligners are everywhere," first page?
A. Yes.
Q. And it says: Almost all orthodontic and

dental companies have aligners these days.

Right?

A. Yes.

Q. But there are critical differences.

Do you see that?

A. Yes.

Q. Let's go to Page 4. Here, this says at the top: Invisalign aligners are unique.

Do you see that?

A. Yes.

Q. Okay. Now, you were here for the opening statements, right?

A. Yes.

Q. And were you here when Ms. Durie said that Straumann and I think implicitly ClearCorrect took a shortcut with the development of their aligners?

A. Yes.

Q. And did you take that as a suggestion that there was some effort to copy the SmartTrack technology?

A. Yes.

Q. Okay. Here, we have at the top: Invisalign aligners are unique. Right?

A. Yes.

Q. And then below that, it says: Many of the

more common aligners use the same core material - Zendura FLX.

Right?

A. Yes.

Q. So this is acknowledging that some of the competitors to Invisalign use Zendura FLX, right?

A. Yes.

Q. And then it goes on to say: So what's the difference between our proprietary SmartTrack material and the commonly used Zendura FLX material?

Right?

A. Yes.

Q. And this goes on to explain Align's view on the differences between Zendura FLX on the one hand and Invisalign and SmartTrack on the other, right?

A. It'll point out some differences, but there's a lot of similarities.

Q. Dr. Derakhshan, this doesn't describe Zendura as a knockoff or a copy or something that took a shortcut. This says Invisalign's unique and Zendura FLX is different, true?

A. Not necessarily.

Q. Well, let me just show you one example. If you go to Page 13. This says: These areas -- meaning these areas in the mouth -- require a highly elastic

material.

Do you see?

A. Yes.

Q. And it says right below that: That's why SmartTrack material has its elastic polymers on the outside and, therefore, does not crack when stretched and compressed.

Do you see that?

A. Yes.

Q. And that's referring to the soft outer layers in SmartTrack, true?

A. Yes.

Q. The construction is soft-hard-soft, true?

A. For which?

Q. For SmartTrack.

A. Yes.

Q. And on the right-hand side -- that's the SmartTrack on the left, and we can highlight SmartTrack. And it says right below that: Highly elastic polyurethane elastomer on the outside.

Right?

A. Yes.

Q. On the right-hand side, the contrast is with Zendura FLX. Zendura FLX. And look what it says in that bullet point below.

Can you read it to the jury, please, Dr. Derakhshan?

A. Constructing an aligner with the material placed in the wrong location results in more permanent deformation and cracks.

Q. And so this document, Dr. Derakhshan, was distinguishing the two technologies and criticizing Zendura FLX, right?

A. I would say it's pointing out a difference.

Q. Right. Pointing out a difference and saying Invisalign and SmartTrack are a different approach than Zendura FLX on the right, correct?

A. Yes.

MR. MUELLER: Thank you, Dr. Derakhshan.

Your Honor, I pass the witness.

REDIRECT EXAMINATION

BY MS. DURIE:

Q. Thank you. Just a couple of questions.

MS. DURIE: If we could have back up PTX-1091 and go back to the page that we were just looking at.

I think it's 13. PTX-1091, 13.

BY MS. DURIE:

Q. Constructing an aligner with the materials placed in the wrong location in the wrong order, a

different order, results in a more permanent deformation and cracks.

Is that consistent with your understanding of the challenges that Straumann/ClearCorrect had been facing in the market with their aligner?

A. One of them.

Q. Now, you were asked some questions about an open and a closed system. Can this iTero scanner be used to order competing aligners?

A. Yes.

Q. Is it in fact, to your knowledge, used to order competing aligners?

A. Yes.

Q. Is that an open or a closed system?

A. That's an open system.

MS. DURIE: Thank you. No further questions.

RECROSS-EXAMINATION

BY MR. MUELLER:

Q. Just a final question.

So in all the materials where the executives at Align were referring to the closed system of iTero and Invisalign, your testimony to this jury is they were all wrong?

A. Well, my testimony is I don't know what they

meant by their discussion of their system. As a doctor, that iTero, I can do what I want with that iTero. I can order aligners, other braces and anything. So that's an open system.

Q. Let's put it this way. We looked at e-mail after e-mail in which the top executives at Align used the term "closed system," true?

A. Yes. That's what was said.

MR. MUELLER: Nothing further. Thank you very much, Dr. Derakhshan.

THE WITNESS: Thank you.

THE COURT: See, don't ever trust them when they say final question.

(Laughter.)

THE COURT: That's what I've learned.

Ladies and gentlemen of the jury, please remember my instructions. If you would be back -- it's 12:30. If you'd be back by 1:45, we will resume.

THE BAILIFF: All rise.

(Jury exited the courtroom.)

THE COURT: Thank you. You may be seated.

MS. DURIE: May this witness be excused?

THE COURT: Is she -- not -- to leave?

MS. DURIE: Yes, Your Honor.

12:31 THE COURT: That's -- no.

12:31 MR. MUELLER: Yeah. That's fine, Your Honor. We've reached an agreement that fact witnesses will be long gone.

12:31 THE COURT: All good. Sure, of course. Thank you for asking.

12:31 Thank you for being here.

12:31 Did I give you all a deadline by when to get us your draft jury charge?

12:31 MR. MUELLER: I'm not sure, Your Honor, to be honest with you.

12:32 THE COURT: Okay.

12:32 MS. DURIE: We're all looking at each other.

12:32 THE COURT: I'd like to have -- make -- occasionally when I forget to give you a deadline, we don't get it in time. In other words, I don't really need it until we have the jury charge conference, but I've had cases where I say I'm going to have the conference and I haven't gotten it yet.

12:32 So I would anticipate in this case next Tuesday or Wednesday we would have the charge conference. I think everyone at the table has been to one of those. So I won't go through how I do it. If you haven't, then ask someone else who's here because

I've done it a lot.

But if you would get those to us by Monday, that would be great. And of course, even after you get them to us, if you continue to negotiate and clean things up, that's certainly fine with me.

MR. MUELLER: Understood. Thank you, Your Honor.

THE COURT: Any issues before we break?

MS. DURIE: I think there is one evidentiary issue that we were wondering whether we should take up now or at the conclusion of the lunch break.

THE COURT: Which witness does it concern?

MR. HUNG: Reitman, Maureen Reitman.

MS. DURIE: Maureen Reitman.

THE COURT: I don't have Reitman anytime soon. When will that person --

MR. HUNG: She might be our last witness today.

THE COURT: We'll take it up after the break.

MS. DURIE: Okay. Thank you.

MR. MUELLER: I just have one quick thing, Your Honor.

THE COURT: Sure.

12:33 MR. MUELLER: There will be an expert witness soon, and I just wanted to confirm what I remember as the rules on cross-examination for prior engagements. And my memory, I just want to confirm, was that we're permitted to cross-examine on the number of prior engagements by the party, not law firms but by party, without getting into any details of the other cases.

Do I have that right, Your Honor?

THE COURT: Yes.

MR. MUELLER: Okay. Thank you, Your Honor.

THE COURT: Anything else?

MS. DURIE: Your Honor, Mr. Durst was asking whether we need to formally invoke the rule.

THE COURT: You could have done that before the first witness. But since you didn't, it hasn't been invoked. If you all would like to go ahead and do that now.

MR. MUELLER: I'm fine with that, Your Honor. I don't think we have any fact witnesses in the courtroom. So we're fine with it now too.

THE COURT: Okay. That's fine.

Anything else?

12:34 MS. DURIE: No, Your Honor.

12:34 MR. MUELLER: No, Your Honor.

12:37 (Recess taken.)

01:47 THE BAILIFF: All rise.

01:47 THE COURT: Please remain standing for the jury.

01:47 (Jury entered the courtroom.)

01:47 THE COURT: Thank you. You may be seated.

01:47 MR. MUELLER: Your Honor, I just had one housekeeping thing. For one exhibit I read the tab number but not the DTX number. It's DTX-217.

01:48 THE COURT: Okay. Thank you.

01:48 MR. MUELLER: Thank you, Your Honor.

01:48 THE COURT: Mr. Nash?

01:48 MR. NASH: Your Honor.

01:48 THE COURT: Pleasure to have you here.

01:48 MR. NASH: Pleasure to be here, Your Honor. Plaintiff calls Mr. Avi Kopelman.

01:48 (The witness was sworn.)

DIRECT EXAMINATION

BY MR. NASH:

01:48 Q. Good afternoon, Mr. Kopelman.

01:48 A. Good afternoon.

01:48 Q. Could you please introduce yourself to the

jury?

A. My name is Avi Kopelman.

Q. Do you have a family?

A. I have a wife, three kids, and two grandkids.

Q. And are you employed?

A. I am currently a retiree from Align Technology for over a year now -- a year now.

Q. I'm sorry. What did you say?

A. For over a year since I retired.

Q. Congratulations on your retirement.

A. Thank you.

Q. And how long were you at Align?

A. I was at Align since 2011. It's about 15 years.

Q. And what was your role when you were at Align?

A. While I was at Align, I was a VP and chief scientist for the company.

Q. And how did you come to join Align?

A. So I joined Align, again in 2011, after Align acquired the company that they cofounded with a friend.

Q. And why are you here today, Mr. Kopelman?

A. I'm here to talk about my work at Cadent, the company I founded, my work at Align Technology, my work on the iTero scanner, and my eraser patent.

Q. Well, let's start with the company that you

01:50 1 founded, Cadent.
01:50 2 When did you start it?
01:50 3 A. I founded Cadent with my friend at 1994.
01:50 4 Q. And what work experience did you have before
01:50 5 starting Cadent?
01:50 6 A. Before starting Cadent, I had close to ten
01:50 7 years of work experience mostly in a computer-aided
01:50 8 solutions, mostly back then for robotic and automotive
01:50 9 applications.
01:50 10 Q. And what was your education?
01:50 11 A. I have bachelor of science from Fairleigh
01:50 12 Dickinson University in New Jersey.
01:50 13 Q. Now, was any of your prior work experience in
01:50 14 the dental industry?
01:50 15 A. Prior to founding Cadent, I did not have any
01:51 16 experience in the dentistry-related work.
01:51 17 Q. Well, so how did you find yourself working in
01:51 18 the dental industry and starting a company there?
01:51 19 A. So about that time, I had a crown fitted in
01:51 20 my -- one of my molars, and I watched how the dentist
01:51 21 worked. And I realized that it's very, very -- what we
01:51 22 call an analog, very old-fashioned, and I realized that
01:51 23 it could be improved with digital solutions.
01:51 24 Q. What do you mean by "an analog" process in
01:51 25 that context?

01:51 A. So a typical -- let's talk about a crown case. Typically, the doctor has to cooperate with the lab. The doctor will do the preparation of the site for the crown, then will take a tray with the goop material inside and create an impression. That's an analog impression.

The doctor will send it over to a lab that will pour plaster, and that's a second generation of an analog information. So that's the analog way.

Q. And did you think you could improve that process?

A. I believed that it could be digitized, computerized, and be much more efficient. And that's from my previous experience in doing the same things in other applications.

Q. Why did you call the company Cadent?

A. So Cadent stands for computer-aided dentistry. That's what we had in mind back then.

Q. Now, did you invest any of your own money into this venture?

A. So indeed, yes. I practically invested all the money I had, close to $100,000, and so did my cofounder. So we both invested our own money in the company.

Q. And how did your wife feel about that?

A. So my wife on one hand encouraged me, but we took a huge risk. That's all the money we had, and we took a big risk in doing that. Follow our dream.

Q. Did you start with an intraoral scanner that we've heard about?

A. So when we founded the company, we had in mind the idea of developing an intraoral scanner. But 1994 was the early days of computers, very early days of computers. And the technology was not as developed as today.

So while we had this idea of an intraoral scanner in our mind, we decided to start introducing digital solution to dentistry with a desktop scanner. So our first product was a desktop scanner.

Q. And can you explain to the jury, what is a desktop scanner?

A. So if we talked about converting from analog to digital, with the desktop scanner, one can take the impression and scan the goop material, so your first generation with an analog impression, and then you scan it and it becomes digital.

Q. How did you build these desktop scanners?

A. So we built those scanners in our hands. Between me, my partner, and another guy, we built the scanner in our hands, practically.

Q. About how many do you think you built?
A. We ended up building 30 such scanners.
Q. And how big are these?
A. They're pretty big, about 3-feet-by-3-feet-by-2-feet. Pretty bulky.
Q. When did Cadent start working on an intraoral scanner?
A. So we started developing the intraoral scanner in 1997.
Q. Now, do you have any pictures from the old days?
A. Yes, sir.
Q. Okay.
MR. NASH: Why don't we bring up PDX-22.
BY MR. NASH:
Q. And I'm showing you PDX-22. Can you just tell us, what does this show, Mr. Kopelman?
A. So this is me, much younger. And I'm in a optic lab here, on an optic bench. That's the bench that used to develop optic equipment. And I'm holding in my hand a miniature camera that we have developed, and I'm pointing on a plaster model of teeth.
Q. Do you remember around the time frame you took this photo?
A. It's around the time we started developing the

scanner.

Q. Okay. Was it challenging to develop an intraoral scanner?

A. It was absolutely very challenging to develop it, especially back then. And I can explain why.

Q. Please.

A. So the challenge with scanning in general, scanning of teeth, is the fact that the enamel layer of the teeth is translucent. And when you scan an object, you project light and you look at what the sensor receives back from the object. And if you project on translucent object, you get the reflection from the inside. It's like you looking at the mirror, you see your image coming from the bottom of the mirror.

But the nature of the work we tried to do was to scan the most outer surface, and this is why scanning teeth is so challenging.

Q. That was different from what you had done with the desktop scanners?

A. Yes. The desktop scanner did not have to cope with translucent teeth because the goop material is not translucent. And the desktop scanner is much bigger. It didn't have the challenge of making it very small and having to put it in a person mouth.

Q. Now, when did your first iTero intraoral

scanner go on sale?

A. We started selling the iTero scanner at 2006.

Q. Now, I think we have one more photo from the old days. What does this one show?

A. So this is me again, and next to me Mr. Tim Mack who worked for us. And the phrase on the wall says: Everything that can turn digital will turn digital. And that's something that we very believed in, and this is what we did in dentistry. And we wanted everybody to see this on the wall.

Q. So was it hard to sell the iTero to doctors?

A. It was. I would say very challenging because the doctors are trained not to try new things. Doctors are trained always to follow what they learned at the university, what their peers are talking about.

And here, we came with a very innovative idea that changes the most critical procedure in their office. We told them, don't do this. Even if everybody's doing it for so many years, try this new thing. So it was challenging to convince. Yes.

Q. Well, thank you, Mr. Kopelman.

I'd like to ask you some questions about your patent.

A. Okay.

Q. First, how many patents did you have while you

were at Cadent?

A. 20 to 25 patents.

Q. Well, you have a binder in front of you, or I guess to your side. And if you could tab -- flip to the tab JTX-1.

Let me know when you're there.

A. Yeah.

Q. Now, do you recognize that document?

A. Yes. This is my '936 patent, which we call here the eraser patent.

Q. And what's your relationship to the '936 patent?

A. I'm the only inventor of this patent. It's my invention.

MR. NASH: Your Honor, at this time, I offer JTX-1.

MR. ZUBLER: No objection.

THE COURT: Admitted.

BY MR. NASH:

Q. Now, was this one of the patents from your time when you were at Cadent?

A. This is correct.

MR. NASH: Okay. Let's display the first page of JTX-1.

BY MR. NASH:

Q. Do you know who owns this patent?

A. The patent is owned by Align Technology, where I worked.

Q. I see. And do you recall, when did you first apply for this patent?

A. Yeah. I applied for this patent early 2010.

Q. And can you explain to the jury --

MR. NASH: And we can take that down, Mr. Smith.

BY MR. NASH:

Q. At a high level, Mr. Kopelman, explain to the jury, what was your idea?

A. Okay. So I think that it's a very interesting idea. When the doctor takes analog impression, the doctor can look at the impression and sometimes see that there is a problem, a bubble or a drop of blood that impacted the quality of the impression, but there's nothing the doctor can do.

The idea here is to allow the doctor to scan with the scanner, look at the outcome, and if the doctor see that there is a problem, like a drop of blood or in prep -- a crown prep that is not adequate, then the doctor can now erase the area with the problem, go back to the patient, and fix the situation in the patient mouth.

So if there is a drop of blood, the doctor can dry it. If there is a -- if the crown is too high, they can reduce the size of the preparation for the crown and now go back and scan that area only.

And the nice thing here is that the doctor do not have to rescan everything again because if the doctor have to rescan everything again, beside the additional work, new problems may arise. For example, now there could be bleeding in another area. So it could be an endless process.

So the doctor keeps whatever is good and only incrementally fix the problem that the doctor have seen.

So this is a very nice idea that you can only do with digital.

Q. Thank you, Mr. Kopelman.

MR. NASH: If we could pull up JTX-1 at Claim 1.

BY MR. NASH:

Q. Mr. Kopelman, does Claim 1 of the '936 patent capture your idea?

A. That's correct.

Q. Okay. And did your idea make it into the iTero scanner?

A. This is correct. We made it into the iTero

scanner.

Q. Do you recall around when that happened?

A. At -- early month of 2011, about a year after I filed the patent.

Q. Okay. Thank you.

I'd like to talk next about iTero and the eraser feature. Mr. Kopelman, do you recognize this device, PDX-893?

A. Yes, sir. This is my iTero scanner.

Q. Can you see it okay from here?

A. I can see enough. Thank you.

MR. NASH: With the Court's permission, can I move the iTero up forward a little bit?

THE COURT: Sure. If opposing counsel needs to move around.

MR. ZUBLER: No objection. It's fine.

THE COURT: Do you need to relocate yourself?

MR. ZUBLER: I think we're fine where we are. Thank you.

MR. NASH: Well, I will say, Mr. Zubler, I was going to ask the witness a few questions about it. So if you -- they're not very complex questions. I promise.

MR. ZUBLER: I'll join you on -- next to

you, if you don't mind.

MR. NASH: Well --

MR. ZUBLER: Is that permissible?

MR. NASH: Please, come on over, Mr. Zubler.

BY MR. NASH:

Q. I was just going to ask you a few questions about it, Mr. Kopelman.

A. Please go ahead.

Q. For the jury, what is this device?

A. I would say that this is the wand, which is part of the iTero scanner, and that's the part that used to put in the patient mouth.

Q. Okay. And then I see what looks like a display. Can you explain to the jury how the display is used in the iTero?

A. So the display will typically show to the doctor how the scan of the teeth is happening, and another part of it is a viewfinder, just like a camera viewfinder, that helps the doctor aim properly.

Q. Thank you, Mr. Kopelman. I'll put the handheld scanner away.

Now, did you lead the development of the iTero scanner, Mr. Kopelman?

A. Yes, sir. I did.

Q. And does it include the eraser feature that you described earlier?

A. That's correct, sir.

Q. And do you recall what type of iTero this is?

A. As much as I can see, this is iTero Element 5D.

Q. I see.

And do you recall when the iTero Element was first released?

A. So this version was first released in 2015.

Q. Does it include continuous scanning?

A. That's correct, sir.

Q. Now, Mr. Kopelman, would a video help you show the jury how the eraser feature works?

A. I believe so. Yes.

Q. And I believe you've reviewed a video PTX-1455 prior to today.

A. That's correct.

Q. Okay.

MR. NASH: And with the Court's permission, we'd like to show that video and ask Mr. Kopelman a few questions.

THE COURT: Sure.

BY MR. NASH:

Q. So I was just going to ask, Mr. Kopelman, if

you recognize the video.

A. Yes, sir.

Q. And what does it show?

A. So we show -- we see here the iTero Element with the -- starting the display.

Q. Okay. Well, we can play the video in clips, Mr. Kopelman, and you can tell the jury what we're seeing, if that would be okay.

A. That's okay.

Q. Okay.

MR. NASH: And, Mr. Smith, let's go to 13 seconds in and just pause there.

BY MR. NASH:

Q. Now, before we start the clip, Mr. Kopelman, can you tell the jury, what do we see here?

A. Okay. So we see here a part of a patient arch. In the middle, we see preparation for a crown. And we see this color map that iTero generates for the doctor. And those colors indicate the distance between each point on the outer surface of teeth to the opposing teeth.

So if it is red, there is an actual contact. And if it is in different colors, the color indicate the distance between that point to the opposing arch.

If you can zoom out, back now. Can you please

mark the crown prep tooth? Perfect.

So this is the crown prep. And the doctor -- and this is a crown case. And the doctor will look at this and say, okay. I see that there is about one and a half millimeter between the outer surface of this crown preparation to the opposing side. And the doctor in this case wanted to have at least 2 millimeter of space.

Now, if it was an analog impression, of course nothing could take place. But here, the doctor can say, okay. I want another half a millimeter of height.

So if you can play video.

Q. Yeah.

MR. NASH: Let's play 13 seconds to 38 seconds.

BY MR. NASH:

Q. And, Mr. Kopelman, feel free to describe what we're seeing as it plays.

A. Okay. So what we see here, the doctor is changing the orientation. It looks at the model from the side and select the eraser tool and will mark the area to be erased.

So the white tip here is the area that has to be replaced. The system will now erase this area which is now marked in red, and this is the marking tool of

the dentist. And now the dentist will go back to the patient, take a tool and shave some more tooth material from the patient mouth, about half a millimeter of tooth material, in order to generate more space for the crown the doctor wants to prescribe. And after doing that, will scan the patient again.

If you can keep playing the video.

Q. Yes.

MR. NASH: Mr. Smith, why don't we play from 38 seconds to 50 seconds.

BY MR. NASH:

Q. And again, Mr. Kopelman, feel free to keep explaining.

A. So now the doctor scans the patient only in the area that was changed. And now we see the final model that has all the information from the initial scan and the most outer surface of the crown prep from the new scan after the doctor have shaved some tooth material from the patient.

So this is a better model because the chances of success with this updated model -- and success means good fit of the crown for the rest of the life of this patient -- will be much higher using this tool.

Q. Thank you, Mr. Kopelman.

MR. NASH: I think we can take down the

video.

BY MR. NASH:

Q. Now let's talk about Align. Can iTero be used to make Invisalign aligners?

A. The answer is yes. Yes.

Q. And how did you go about getting the iTero available to make aligners at Invisalign?

A. So when we start -- when we started to talk with Invisalign about -- and that's before the companies merged, when we started to talk to Invisalign about being able to scan for Invisalign, it was well understood by the two sides, us and Align, that you have to qualify the scanner as being able to scan for Invisalign.

So we developed a testing -- a very comprehensive testing plan that included experiments, controlled experiments on real patients. So among other things, we did 100 patients with 10 doctors, and we compared the outcome of those scans to the everyday outcome of Invisalign using the goop material.

Q. Now, did that require a lot of resources to do that qualifying?

A. I believe that it required a lot of resources on both sides.

Q. Why was it important to do that qualification

process?

A. So Invisalign is a medical system. And if the quality of the initial information is not good, you may end up implementing a wrong treatment. You may even end up treating a patient for two years before you realize that the upper arch will not fit the lower arch or other similar situations.

So the quality of the scan is dramatically important for the whole treatment and the final outcome of that treatment.

Q. Now, you mentioned that Align merged with Cadent in 2011. Did any other companies reach out to Cadent about a potential merger?

A. So back then the other company that had interest in buying Cadent was Straumann.

Q. Why did you decide to merge Cadent with Align?

A. Two reasons. Reason No. 1 was monetary. Align offered more money, and we were committed to our investors. So money was important. But I also preferred to work with the Align people because that I felt more chemistry and more friendly with those people.

Q. Was there any similarities in the visions of the two companies?

A. So the two companies were very innovative each

in its own territory. Invisalign invented the idea of implementing orthodontic treatment with clear aligners, and we were the inventors of the first intraoral scanner. So culturally we were very similar, and the two products complement each other very well.

Q. Now, when Align acquired Cadent, did you intend for iTero to become only used with Invisalign?

A. On the contrary. ITero was always an open system. And by open system, it means that if a doctor buys iTero, the doctor can scan any patient for any purpose and use the scan --

THE COURT: Sir?

MR. ZUBLER: Could we approach for side bars, Your Honor?

THE COURT: Of course.

(Bench conference.)

MR. ZUBLER: Your Honor, we're now venturing into some topics on which he was never disclosed as a witness. We're venturing in from what he was designated on, which is the inventor of the '936 patent and about the development of the iTero scanner, into the antitrust issues on which he was never designated, either in initial disclosures or 30(b)(6), and on which Align designated different people to discuss that issue.

02:14 THE COURT: Well, I'm not sure what you mean by "designated" if he's just a fact witness saying facts.

02:14 MR. ZUBLER: Well, in terms of his initial disclosures, sir, the initial disclosures, the only topics that he was identified as was as the inventor of the '936 and as --

02:14 THE COURT: But he's a fact witness. I mean, here's the deal. If he -- he's a fact witness. If you -- I don't ever remember identifying a fact witness for what they're going to testify about in limine. If Mr. Nash asks something that is a fact question, I'm going to let him answer.

02:14 If it -- if it swerves -- and Mr. Nash is too good a lawyer to let this happen, but if it were to swerve into something that required an opinion, then under Rule 26, I would have expected them to notify you on that basis. So if you think he's giving an opinion as opposed to just a fact, you're welcome to object.

02:14 MR. ZUBLER: That's understood, Your Honor. Our point, though, is simply that --

02:15 THE COURT: I understand.

02:15 MR. ZUBLER: -- when we took his deposition, he had no notice.

02:15 THE COURT: I understand your point.

02:15 MR. ZUBLER: Yes. Understood.
02:15 THE COURT: And I just made my ruling.
02:15 MR. ZUBLER: Thank you, Your Honor.
02:15 (Bench conference concludes.)
02:15 BY MR. NASH:
02:15 Q. Mr. Kopelman, would you mind adjusting your
02:15 microphone a little bit just to make sure the audio's
02:15 okay?
02:15 Now, what did you mean when you said in your
02:15 experience, the iTero was an open system?
02:15 A. So an open system is a system in which the
02:15 user of the system in this context can do with the data
02:15 whatever the user of the scanner wants to do. And in
02:16 the context of iTero, if a doctor buys iTero, the
02:16 doctor can scan any patients for any purpose and use
02:16 the data for whatever the doctor wants. That's an open
02:16 system.
02:16 Q. And in your experience, could doctors send
02:16 iTero scans outside of Align?
02:16 A. Outside of Align to any establishments the
02:16 doctor wants.
02:16 Q. Would that include ClearCorrect?
02:16 A. That includes ClearCorrect.
02:16 Q. Now, during your time at Align, did iTero
02:16 remain open in that way?

A. So when we joined Align, I told the Align people that iTero is an open system, and I want iTero to stay an open system. And what I heard back from them: This is our intention as well. So iTero remained open and it is still open today.

Q. Thank you, Mr. Kopelman.

One final question. Looking back over your career, what gives you the most satisfaction?

A. That's an interesting question. I think that the fact that my parents, and especially my father, lived to see that this dream of mine really happened. That's, I think, number one. And the fact that my wife who trusted me for so many years is still with me and also saw that it was successful.

MR. NASH: Thank you, Mr. Kopelman.

I pass the witness.

MR. ZUBLER: Good afternoon, ladies and gentlemen of the jury.

My name is Todd Zubler. I represent ClearCorrect.

CROSS-EXAMINATION

BY MR. ZUBLER:

Q. And good afternoon, Mr. Kopelman. Nice to meet you.

A. Good afternoon. I didn't get your name.

02:18 Q. Yes. My name is Todd Zubler. I represent ClearCorrect.
02:18 A. Nice to meet you.
02:18 Q. Would you mind if I ask you some questions today, sir?
02:18 A. Please go ahead.
02:18 Q. You are the named inventor on the '936 patent, correct, sir?
02:18 A. That's correct.
02:18 Q. And you used to work for Align, correct?
02:18 A. Correct.
02:18 Q. And you retired from Align in March of 2025, correct?
02:18 A. Correct.
02:18 Q. Now, you've been designated as Align's corporate representative for this case; is that true, sir?
02:18 A. That's correct.
02:18 Q. And that's why you've been sitting at counsel table today and you were able to hear opening statements and the testimony of Dr. Derakhshan, correct?
02:18 A. I don't know if that's the reason, but I was here.
02:18 Q. Thank you.

And you'll be joining us at counsel table for the whole trial; is that correct, sir?

A. I believe so. Yes.

Q. Now, you gave deposition testimony in this case, true?

A. Yes, sir.

Q. And you were paid for the time you spent preparing for that deposition, correct?

A. That's correct.

Q. And there's nothing wrong with being paid for the time you spent assisting with litigation, is there, sir?

A. I don't know the law, but I was paid for the time.

Q. And there's nothing wrong with that, is there, sir?

A. Good to know.

Q. We can agree on that, sir.

Now, you're here today to testify on behalf of Align as the corporate representative, but you haven't submitted an expert report in this case, have you, sir?

A. Not beyond my deposition.

Q. And you're here to testify as a fact witness about the -- your invention and the iTero scanner, correct, sir?

A. That's correct.

Q. You're not here to offer any expert opinions about infringement or the validity of the '936 patent, correct, sir?

A. That's correct.

Q. And you understand those are issues for the jury to decide based on the evidence and expert testimony that comes in later in the case, correct?

A. I suppose so.

Q. Now, before you worked at Align, you worked at Cadent, you said, I believe; is that right?

A. Correct.

Q. And Align then acquired Cadent, true?

A. True.

Q. And Cadent was the company that had sold the iTero scanner, correct?

A. That's correct.

Q. And the iTero scanner is an intraoral scanner, true -- correct?

A. That's correct.

Q. And let's talk a little bit about your work at Cadent and Align.

When you were working at Cadent and Align, you would sometimes review patents owned by other companies, correct?

A. I sometimes, as my -- from my personal interest, looked at other patents.

Q. And you would look at patents that you found on the Google patent search, correct?

A. Probably including Google patents, yes.

Q. And you would do that four or five times or maybe ten times a year, correct, sir?

A. I cannot put a number.

Q. And there's nothing wrong with companies looking at patents from other companies, is there, sir?

A. I would assume it's okay.

Q. That's something that normal companies do to see what other companies are doing in the marketplace, correct, sir?

A. I know that I did it.

Q. Now, let's talk a little bit about your patent, the '936 patent, and how you got to that idea.

Now, you testified earlier that the iTero scanner started selling in 2006; is that correct, sir?

A. That's correct.

Q. And you also testified that you applied for the '936 patent in 2010, true?

A. That's correct.

Q. So the iTero scanner was on sale publicly for several years before you applied for the '936 patent,

correct?

A. That's correct.

Q. And by the time the '936 patent was filed, there were actually a number of other intraoral scanners that were on the market other than iTero, correct?

A. By what time?

Q. By the time you filed for the patent in 2010.

A. There were other scanners, very, very few, and as much as I recall now, they all could not scan the teeth directly.

Q. Well, we can agree, sir, that even before the '936 patent was filed in 2010, there were other intraoral scanners that were available other than the iTero, right?

A. Partially right. Those scanners did not scan teeth. You had to paint the teeth in order to scan. The only scanner that could scan directly was iTero.

Q. Those were intraoral scanners that could scan the dentition of patients, correct, sir?

A. It could scan the powder over the teeth.

Q. Now, we can agree, sir, that the '936 patent doesn't claim to cover the general idea of an intraoral scanner, correct?

A. That's correct.

Q. The '936 patent claims to have invented a particular feature that can be incorporated into an intraoral scanner, correct, sir?

A. I think that it's more than a feature. I would call it a workflow.

Q. Well, sir, we can agree that there's only one feature of the current iTero scanner, what you call the eraser function, that is using the '936 patent, correct?

A. Yes.

Q. The '936 patent doesn't cover scanners that don't have the claimed eraser function, correct?

A. The patent is on the eraser, not on other scanners.

Q. And in your words, the '936 patent enables a doctor to do an incremental scan, right?

A. That's another way to look at it.

Q. And by "incremental scan," you mean that the doctor can take a scan, erase a part that he or she doesn't like, freeze the rest of it, and then rescan the area he or she didn't like, and then combine the old scan that was frozen with a new scan to create a composite image; is that right, sir?

A. So the patent discuss more than one ideas. One of the ideas in the patent is to freeze, but it's

not limited to freeze. So you can apply the patent without having to freeze. That's -- one of the ideas here is without the freeze.

Q. You've characterized the idea behind the '936 patent as an incremental scan, correct?

A. That's one way to describe it to people who don't understand the material.

Q. Now, and when you're thinking about what in your view is novel about the '936 patent compared to what came before the '936 patent, before what was being done in 2010, there are no other concepts that come to mind besides combining two different scans, correct, sir?

A. I'm not sure I follow the question.

Q. Okay. Well, when you're thinking, sir, about what is novel in your view about the '936 patent compared to what was coming before the '936 patent in 2010, the concept -- the only concept that comes to your mind is combining two different scans. That's the novelty, correct?

A. No. Another part of the novelty is the ability for the clinician to erase an area with the problem in order to go back to the patient, fix this area, change -- patch the patient and then rescan.

Q. Now, sir, as we mentioned before, you gave a

deposition testimony in this case, correct?

A. Correct.

Q. Now, let me just explain, if I could, and we can talk about what the deposition process is for the benefit of the ladies and gentlemen of the jury.

A. Okay.

Q. In a case like this, you came to the legal offices of your attorneys, and our attorneys were able to ask you questions under oath; is that correct, sir?

A. Correct.

Q. And that's a process that goes both ways. The attorneys for Align were able to ask questions of ClearCorrect's witnesses as well, correct?

A. Correct.

Q. And that's fair because both sides can understand what the other witnesses will have to say, right?

A. That's a legal definition, but I believe so.

Q. And when you gave testimony, sir, you testified under oath, the same oath you took today, correct?

A. Correct.

Q. And, sir, there was a court reporter present to take down your testimony, true?

A. Correct.

Q. If I could ask you to turn to Tab 1 of your binder.

And this is a transcript of your deposition, sir. And if I could ask you to turn --

A. One second. Could I get my glasses, please?

Q. Oh, certainly.

MR. ZUBLER: May I approach the witness?

BY MR. ZUBLER:

Q. This is the transcript of your deposition. And if I could ask you to turn to Page 177 of the transcript, please.

A. What page number?

MR. ZUBLER: May I approach the witness, Your Honor?

BY MR. ZUBLER:

Q. I'm going to direct your attention to Page 177, Line 25 of the transcript.

Are you there, sir?

A. Yeah.

Q. And if you could read along with me. You were asked:

Question: And so when you're thinking about in your view the novelty of the '936 patent over what was being done before July 2010, are there any other concepts besides combining two different scans that

02:28 1 come to mind?
02:28 2 Answer: No.
02:28 3 Then there was some questions with the
02:28 4 reporter. And the attorney then asked: Any other
02:28 5 innovations that come to mind over what was being done
02:28 6 before July 2010?
02:28 7 Answer: Related to the incremental scanning?
02:28 8 Question: Related to what's claimed in the
02:28 9 '936 patent.
02:28 10 Answer: Nothing that I recall.
02:28 11 Do you see that testimony, sir?
02:28 12 A. Yeah.
02:28 13 Q. You were asked those questions, and you gave
02:28 14 those answers, correct, sir?
02:28 15 A. Correct.
02:28 16 Q. Now, sir, we can agree that some patents are
02:29 17 more valuable than other patents, correct, sir?
02:29 18 A. I would assume.
02:29 19 Q. And some patents don't have much value at all,
02:29 20 correct?
02:29 21 A. That, I don't know.
02:29 22 Q. Well, are you -- you're aware, sir, that --
02:29 23 you're not aware, sir, of Align ever having licensed
02:29 24 the '936 patent to anyone else, correct?
02:29 25 A. I do not know.

Q. You're not aware, sir, of anyone ever expressing interest in licensing the '936 patent, correct?

A. I do not know, and I wouldn't know.

Q. And you're not aware of anyone who has sought to buy the '936 patent, correct?

A. Again, I do not know.

Q. Now, you're the corporate representative for Align, true?

A. True.

Q. And in that role, you're aware of the litigation positions that Align is taking in this case, correct?

A. I don't know all the details of different commercial discussions that took place.

Q. And you're aware that Align has hired an expert to analyze damages for alleged infringement, correct?

A. I would assume so.

Q. And he's going to be testifying later in this case, a man named Mr. Lasinski. Do you know that, sir?

A. I don't know him personally.

Q. And are you aware, sir, that Mr. Lasinski submitted an expert report in this case on the issue of damages? Are you aware of that, sir?

A. Yes.

Q. And are you aware, sir, that Mr. Lasinski, after all of his analysis, never assigned any value or any damages figure for alleged infringement of the '936 patent?

A. Yeah. I do not know that.

Q. Last set of questions, Mr. Kopelman.

You were here earlier today. You heard the opening statements. You saw the testimony of Dr. Derakhshan, correct?

A. Correct.

Q. And you saw numerous e-mails presented in evidence regarding Align executives referring to the Invisalign iTero system as a closed system, correct?

A. That's what the two sides argued about.

Q. The two sides argued about.

And you saw the e-mails, sir, where top Align executives referred to the Align, Invisalign, iTero system as a closed system. You saw those e-mails, correct, sir?

A. I saw the e-mails, yes.

MR. ZUBLER: I'll pass the witness.

MR. NASH: No questions for the witness, Your Honor.

THE COURT: Thank you, sir.

MS. DURIE: Your Honor, we call as our next witness Dr. Maureen Valley.

(The witness was sworn.)

DIRECT EXAMINATION

BY MS. DURIE:

Q. Good afternoon.

A. Good afternoon.

Q. Could you please introduce yourself to the jury?

A. Hello. My name is Dr. Maureen Valley, and I'm an orthodontist.

Q. Where do you practice?

A. I practice in Lodi, California. It is just south of Sacramento, and it's somewhat of a rural area.

Q. What drew you to orthodontics?

A. Wow. It's been a wonderful profession. I wanted to help people. I mean, that's what most orthodontists will tell you, but it's the truth. And, you know, we really understand the value of good oral health as it relates to straight teeth and a good bite.

And over the past years, we are really starting to understand how that relates to overall health. Maybe when I made that decision to enter the profession, I didn't quite know that then. But I think my motivation was to help people with their

self-confidence.

Q. Where did you go to school?

A. I started with a bachelor's of art in biology at the University of California in Santa Barbara. From there, I went to Harvard University, and I got my dental degree and my master's of public health. And then lastly, I finished at Northwestern University in Chicago, where I got my master's and certificate in orthodontics.

Q. Have you spent any part of your career teaching?

A. I have.

Q. Tell us about that.

A. So I had a love for teaching. I started at Harvard University, and then I moved on to the University of the Pacific. This is in San Francisco. And there I was an associate professor, and I ran the graduate orthodontic clinic for about 11 years.

Q. How long have you actually practiced as an orthodontist?

A. So I've been in the dental world since 1987, and I've been a practicing orthodontist for 32 years.

Q. Do you own your own practice?

A. I used to. I owned my own practice for about 20 years, and currently I am working for Kids Care

Dental & Orthodontics in Lodi.

Q. Is your practice now taking care of kids?

A. It's taking care of kids, teenagers, and their parents.

Q. Now, if you've been doing this for 32 years, why aren't you retired yet?

A. A lot of people ask me that question. A few reasons. I feel I'm at a point in my career where I feel very confident that I know what I'm doing. I have a wonderful staff. My assistants are highly trained. I love going to work, working with them as a team. And also the technologies these days have really come far. And I feel at this point with all of that, I can really help my patients.

My patients come to me. I know they work very hard to bring their children or themselves to me to pay for this treatment, and I feel good that I can really give them the best of care.

MS. DURIE: Your Honor, we tender Dr. Valley as an expert in orthodontics and dentistry.

MS. FERRERA: No objection.

THE COURT: She'll be admitted as such.

BY MS. DURIE:

Q. Now, Dr. Valley, have you specifically worked with Align in the past?

A. I have.

Q. What kind of work, just at a super high level, have you done for Align?

A. Some consulting work.

Q. When did you start that consulting work with Align?

A. Over 20 years ago.

Q. And over that whole period of time, what percentage of your income would you say has come from work for Align?

A. I would say 10 percent or less. I was always working full time as a practicing orthodontist.

Q. Why did you decide to do this kind of consulting work?

A. I find it very mentally stimulating. You know, sometimes working in your practice, it's a little isolating. And I find patents to be very interesting.

Q. How do you set your rate for being an expert witness?

A. I set my rate to be somewhat equivalent to what I normally would make like on an hourly basis if I were to be practicing.

Q. How many patients have you treated over the course of your career?

A. I've treated about 10,000 patients.

Q. And of those 10,000 patients, how many of them got wires and brackets, conventional metal braces versus clear aligners?

A. Uh-huh. I would say about 75 percent were braces patients.

Q. How do you decide whether a given patient is going to get braces or is going to get an aligner?

A. Sure. So the very first appointment is a consultation appointment, and that's when the patient and their parents come to me. And I want to listen very closely to them. I want to understand what their concerns are and what their goals are.

And then I do my clinical exam. I come up with a diagnosis. And from there, I'm -- I'm there to educate and to help my patients and their parents decide upon how we're going to go about doing this.

I have -- I always have in my mind this very big bag of appliances I can use. And through my experience, I know some work better than others. In this instance -- in this instance -- and every patient is unique to me. So I will sit down and we will discuss their concerns, their goals, what I saw.

Of course I'll give them options, and then I will give my recommendations.

Q. Now, Dr. Valley, let's talk a little bit about

scanners. Does your practice have an intraoral scanner?

A. It does.

Q. Which intraoral scanner does it have?

A. It's the one right in front of you. It's the iTero scanner.

Q. Has that iTero scanner been helpful to you in your practice?

A. It's been very helpful.

Q. Why is that?

A. Well, I go back to the days of impression taking. So I have that to compare it to. And we use our iTero scanner every day. It's -- somebody's always got that scanner. We use it for diagnostic purposes, educational purposes, scanning for retainers or other appliances, and also for clear aligner therapy.

Q. Now, are you personally the one who is using the iTero scanner?

A. I am not. My assistants are trained to use the scanner. They take the records. They take the photographs. They take the x-rays, and they take the scans. However, all of this is under my direct supervision.

Q. How -- are you familiar with the eraser feature that we just heard about?

A. I am.
Q. Have you used that eraser feature in your practice?
A. All the time.
Q. Is that feature useful to you in your practice?
A. It's very useful.
Q. Why is that?
A. It's very useful for myself for efficiency and precision, getting a precise impression, and it's also, I know, helpful for the patient. Because for some patients, it's not the most comfortable experience. For others, it's okay. But it limits the amount of time that I have to keep going back in and rescanning their teeth.
Q. Now, are you here to offer some expert opinions in this case?
A. I am.
Q. And did you prepare some demonstratives to assist with your testimony?
A. I prepared some slides.
MS. DURIE: If we could put up Slide 1.
BY MS. DURIE:
Q. Could you please tell the jury what the opinions are that you're here to testify about today?

A. Sure. I was asked for my opinions regarding first whether the SIRIOS and Virtuo Vivo scanners, those are the Straumann scanners, whether they met the requirements of Claim 1 of the '936 patent.

Q. And if I can just stop you there for a moment. Is the '936 patent Mr. Kopelman's patent that we just heard about?

A. Correct.

Q. And what other opinion are you here about?

A. And then secondly, I was asked my opinion regarding whether or not the iTero scanner practices the same claim, Claim 1 of the '936 patent.

Q. And what is your opinion with respect to each of these two issues?

A. My opinion is, first, that the SIRIOS and Vivo scanners do meet all of the requirements of the '936 patent and that the iTero scanner practices the '936 patent.

MS. DURIE: So if we could go to the next slide, please.

BY MS. DURIE:

Q. What do we have here?

A. This is the '936 patent that we've been calling the eraser patent. And this is Claim 1. This is the claim in question. You'll see listed under the

very top are all of the requirements that I was looking at to see if these scanners met those requirements.

Q. We're going to talk through the requirements one by one, but first, I want to walk through a little bit how you came up with your opinions in this case.

Can you turn in the binder that you have to PTX-1798?

A. I'm there.

Q. What is PTX-1798?

A. So these are -- so during my inspections, I ran some tests and I took photographs and screenshots of the scanner displays.

MS. DURIE: Your Honor, we offer PTX-1798.

MS. FERRERA: No objection.

THE COURT: Admitted.

BY MS. DURIE:

Q. Could you please turn next to PTX-1412 in your binder?

A. I'm there.

Q. What is that?

A. This is the Straumann SIRIOS instruction manual.

MS. DURIE: We offer PTX-1412.

MS. FERRERA: No objection.

02:42 THE COURT: Admitted.

BY MS. DURIE:

Q. And if we could next, please, have you --

MS. DURIE: If we could actually pull up, please, the slide that has PTX-1412 at 51.

BY MS. DURIE:

Q. What is this thing here, Dr. Valley?

A. So this comes from the instruction manual of the SIRIOS scanner. And this is a section on troubleshooting. And it just shows that if you have any discrepancies in the 3D model, then you can use a feature called the cut tool to eliminate some of these discrepancies and then conduct a rescan.

Q. Now, Dr. Valley, did you also watch any videos as part of forming your opinion?

A. I did.

Q. Would you like to play one for the jury?

A. Sure.

MS. DURIE: If we could please play PTX-1409.

BY MS. DURIE:

Q. And maybe you could just tell us again what we're seeing here.

A. Okay. So this is a video from Straumann on the SIRIOS scanner, and what we're going to see here,

this is after the doctor has taken the first scan. Now they're going to indicate that area that they want to erase. This is the cut tool. And you can see it's highlighted in blue. I would be using my mouse in the cursor on the screen to do that.

Then we touch the cut over here, and you'll see that has been eliminated, that area.

Then I go back into the patient's mouth. This is an area that's now been changed in the mouth, and I'm able to rescan just that portion that was removed, and that gets incorporated into what was retained.

Q. Dr. Valley, how does this video that we just watched compare to your own inspection of the SIRIOS scanner?

A. It's exactly the same.

Q. Now, can you explain to the jury how you went about doing the actual infringement analysis?

A. Sure. So I started with the '936 patent, and I analyzed it, specifically Claim 1. And then I took that and I compared it to the products. That would be the SIRIOS scanner and the Virtuo Vivo product. And I went through the workflow on those scanners and compared it to each requirement of the Claim 1.

MS. DURIE: Your Honor, with Your Honor's permission, I would ask the witness to step down and

come to approach the scanner.

THE COURT: Sure.

MS. DURIE: Thank you.

BY MS. DURIE:

Q. Dr. Valley, if you could just step down here. Thank you.

Could you show the jury the different parts of the scanner?

MS. FERRERA: Your Honor, may I come around?

BY MS. DURIE:

Q. Go ahead.

A. So this is the iTero scanner, and we're going to start with this is the wand or the handheld device. This is what I place in your mouth to do the scan of your teeth. This is connected to a computer. The computer has software. It has memory. The software runs the instructions for the scanning. And you can see there is a display screen here.

Q. Now, in terms of what you did with respect to your infringement analysis -- I'm going to ask you just to stay there.

MS. DURIE: And if we could please put up the next slide.

BY MS. DURIE:

Q. And I think you're going to be able to see it here on the screen.

What do we have here at the top?

A. I'm going to step over here.

Q. Sure.

A. This is what we call the preamble of Claim 1. It's the very beginning. And this is -- underneath it is one of the requirements. So this is saying there's a system for scanning. And this system for scanning has a handheld intraoral scanner. It has a computer. That computer has readable medium, which is like memory, and it includes instructions, a software.

Q. And did you find that to be present in the SIRIOS scanner?

A. I did. These are photographs that I took when I inspected both. You can see that for both scanners, there's a handheld intraoral scanner that goes in your mouth to scan your teeth. There's a computer. The computer has software, and there's a display screen.

MS. DURIE: So if we can go to the next slide.

BY MS. DURIE:

Q. It says here: Receive first scan data of patient's teeth from the handheld intraoral scanner.

If I hand you these teeth, could you maybe

show us --

A. Sure.

Q. -- what we're talking about?

A. Sure. So imagine I'm going to start to scan your teeth. I take the handheld intraoral scanner. I push a button and then I start waving it over the teeth, and that starts to capture data of your teeth.

Q. And did you find that to be present -- you can set that back down -- in the SIRIOS product that there was a way to receive first scan data of the patient's teeth from the handheld intraoral scanner?

A. I did with both.

MS. DURIE: If we can go to the next slide, please.

BY MS. DURIE:

Q. The next requirement is display, to a display, a model of the patient's teeth, where the model is based on the received first scan data.

What's that talking about, and did you find that to be present?

A. I found that to be present in both of the scanning systems because as I was using the wand to scan the teeth, I could look at the display. And I saw the 3D model of that -- the physical teeth start to show up on the display.

MS. DURIE: Let's go to the next requirement, if we could, please. 1[c].

BY MS. DURIE:

Q. It says you receive user input defining a portion of the model to be removed.

Did you find that to be present?

A. Yes. I did. So I was able to identify on the screen, on the display, the 3D model, I was able to take my mouse and the cursor and identify a portion of that first scan, define a portion that I wanted to remove.

Q. And is that what we see here circled in turquoise on the screen?

A. On both sides highlighted in blue. On the SIRIOS side, this is a cut tool. And on the Virtuo Vivo side, it's a Lasso tool, eraser tool.

Q. Thank you.

Now, if we go to the next slide and we look at 1[d], removing, from the displayed model, a removed surface portion of the model.

Can you explain what that's talking about?

A. Yes. Just basically the software then removed that portion that I had identified.

Q. And then if we go to the next requirement, 1[e], receiving second scan data of the patient's teeth

from the handheld scanner, can you maybe demonstrate for us what this is talking about?

A. Sure. So at this point in time, there's maybe been a change to the mouth. I know quite often in my practice we're doing scans. Sometimes there's some food. And in that first scan, it will show up in the display. And I'll say, oh, there's some food there. We don't want that in our scan.

So I go back to the patient's mouth. I remove the food. I go back with my handheld scanner, and I'm just going to scan that portion that I had removed from the 3D model on the display screen.

Q. And did you find that to be present in the SIRIOS and Virtuo Vivo devices?

A. I did. When I performed my test, you can see these are the screenshots I took. You can see that this is the second scan data that has come in of that portion that I had previously removed.

MS. DURIE: If we can please go to the next slide.

BY MS. DURIE:

Q. Replace at least a portion of the removed surface portion of the model using the received second scan data, including surface data of a physically changed portion of the patient's intraoral cavity.

That's a mouthful, but what does that mean?

A. It means when I went in for the second time and I was scanning the surface of that tooth that I had previously removed from the display and the scanner's picking up the surface of that tooth, the data from that, and that is being projected now onto the display screen.

Q. So is that what we're seeing in those yellow circles?

A. Yes. It is.

THE COURT: Counsel, I'm -- I'm not seeing why she has to be standing up here.

MS. DURIE: That's fine. She can -- she can go back, Your Honor. Here.

BY MS. DURIE:

Q. Now, are you an expert in what's happening at the level of the computer?

A. No.

Q. Okay. Now, I want to go to the next requirement.

MS. DURIE: If we can go to the next slide.

BY MS. DURIE:

Q. Outputting to the display a model of the patient's teeth with the portion of the removed surface

02:52 portion replaced.

What's that talking about?

A. So what I'm seeing here is when I look at the display, I see the first scan, the part that was removed, and then the part that I scanned the second time. And it's being replaced. It's being combined, and now I have a full, complete model.

Q. Okay. Now, I want to ask you, all of these images that we have been looking at, what are these images of?

A. These images are a 3D model of my physical -- this time and in my test it was a physical model of plastic teeth. If I were to have scanned your mouth, it would have been -- this would have been a 3D model of your actual teeth.

Q. And the SIRIOS, just what is the SIRIOS?

A. The SIRIOS is a scanning system.

Q. Who sells the SIRIOS?

02:53 A. Straumann.

02:53 Q. And what about the Virtuo Vivo, what is the Virtuo Vivo?

02:53 A. Sure. It's -- it's the same.

02:53 Q. Also sold by Straumann?

02:53 A. Correct.

02:53 Q. And do you understand to be -- those to be

products that are accused of infringement in this case?

A. Correct.

Q. Now, do you know what's going on under the hood at the computer source code level in these systems?

A. I'm a clinician. I do not know what's going on under it. I use the system.

Q. Will there be somebody else who will be testifying to the jury about that portion of things?

A. Yes. I understand Dr. Singh will be coming up soon.

Q. So based on your analysis, Dr. Valley, can you summarize your conclusions for the jury?

A. So my conclusions, after running my tests on the SIRIOS and the Virtuo Vivo scanners, is that they meet all of the claims -- excuse me -- all of the requirements as I've checked off in green of Claim 1 of the '936 patent and, therefore, they infringe.

Q. Now, Dr. Valley, did you also inspect Align's iTero scanner -- that's the one that we have here -- as part of your analysis?

A. I did. I ran the very same test on the iTero.

Q. And did you consider whether iTero's eraser tool satisfies Claim 1 of the '936 patent?

A. I found that the iTero also practices the '936

patent.

Q. And on which iTero versions is that eraser tool available?

A. I understand that the eraser tool has been available since Version 4, which was released in May 2011.

Q. Okay. Thank you.

I want to ask you briefly about one other thing. Do braces use the same type of wire all the way through treatment or does it change?

A. No. We use a series of wires when we do braces.

Q. Why does it change?

A. It's very important because you have to go through a series of wires. These wires start off very flexible and small and thin because the patient has brackets bonded to their teeth, and you have to -- if their teeth are crooked, you have to weave that in and out, connect brackets.

Now, those first wires start to gently apply pressure to the teeth, make the teeth straight. And as you progress through the series of wires, they get straighter and straighter.

Q. What is that wire that's used towards the end of the process called?

A. Uh-huh. So there's different phases as your teeth move. The bulk of the movement happens at first, and then at the very end we call that our detailing phase where the teeth are almost there but there's just a little bit more that you want to get the teeth perfect. We call that the finishing stage, and that's when we use our finishing wire.

Q. And for about what percentage of the course of treatment is that finishing wire used?

A. I would say about 20 to 25 percent.

Q. So switching gears a little bit, does that same concept come up in the aligner world?

A. Yes, although there are slightly different systems, the concept is the same. As we're straightening your teeth, we're going through a series of aligners. Your teeth get straighter and straighter and straighter until we're at the very end. And then we just want to get it -- tweak it, just tiny little movements just to get it right.

Q. Are you aware of any aligner company that uses something similar to a finishing wire?

A. I am.

Q. What is that company?

A. That company is Ormco.

Q. And do you understand how that works?

A. I do. Just as I described, the patient will move through a series of aligners. You get almost to the very end, and you want to tweak it, just precise adjustments. And I understand that the Ormco aligner system has a material they call the finishing aligner material, and it's different. It's a little stiffer, and it gives you just that last bit of tooth movement.

Q. Could you turn in your binder, please, to PTX-89, and could you tell us what that is?

A. So I'm looking at the Ormco brochure.

Q. Did you rely on this to form your opinions?

A. I did.

MS. DURIE: We offer PTX-89.

MS. FERRERA: No objection.

THE COURT: Admitted.

BY MS. DURIE:

Q. And how do Ormco's, these stiffer aligners, what is the function that they are serving?

A. Just as I explained, to finish. They're -- they're stiffer, and they do just that final pressure, that final refinement of the teeth.

Q. And over what percentage of the course of treatment would you expect that to operate?

A. Again, about 20 to 25 percent.

MS. DURIE: Thank you, Dr. Valley.

I pass the witness.

MS. FERRERA: Ladies and gentlemen, I'd like to just introduce myself briefly. My name is Vinita Ferrera, and I'm one of the attorneys that's representing ClearCorrect here today.

CROSS-EXAMINATION

BY MS. FERRERA:

Q. Good afternoon, Dr. Valley. Nice to see you again.

A. Good afternoon.

Q. Now, I just want to finish -- start where you finished, which you were talking about braces and clear aligners. And I just want to make sure I understand one thing.

When you want to eat food or drink, you're supposed to take your clear aligners off, right?

A. Correct.

Q. But braces you leave on when you're eating and drinking, right?

A. Correct.

Q. And that's a difference between them, correct?

A. Correct.

Q. Now, I think I heard you say to your counsel earlier that you've been a practicing orthodontist for 32 years; is that right?

02:59 A. That's correct.
02:59 Q. So that's since about 1994?
02:59 A. Yes.
02:59 Q. And you said you've treated approximately 10,000 patients; is that right?
02:59 A. Correct.
02:59 Q. And you said that about 75 percent of them were braces, right?
02:59 A. Yes.
02:59 Q. But the other 25 percent were clear aligners, correct?
02:59 A. Approximately. I do a few other things, but I think in general, yes. That has been how I've practiced.
02:59 Q. So 2,500 patients, about 25 percent of your patients, right?
02:59 A. Correct.
02:59 Q. And you agree that there are multiple brands of clear aligners that are available, correct?
02:59 A. That's correct.
02:59 Q. Invisalign is one?
02:59 A. Yes.
02:59 Q. And ClearCorrect is another?
02:59 A. Yes.
02:59 Q. Another one is Spark. You were just talking

about that brand, right?

A. Correct.

Q. And there are other brands too, correct?

A. There are.

Q. But the only clear aligner brand that you've ever used with your patients has been Invisalign, right, Dr. Valley?

A. Correct.

Q. So you don't offer your patients a choice of clear aligner brands, correct?

A. I use Invisalign. I've come to be very confident with the product. My goal is to deliver what I feel is the best for them.

Q. Right. So you do not offer your patients a choice of clear aligner brands, right? You only offer Invisalign?

A. That's correct.

Q. Now, Dr. Valley, you talked earlier about some of the benefits of Invisalign and why you like using it and the benefits of the iTero scanner. But the truth is you've never tried any other brand of clear aligners, correct?

A. That's correct.

Q. And prior to this litigation, the only intraoral scanner that you had ever used was the iTero,

right?

A. That's correct.

Q. And, Dr. Valley, you talked a little bit about the consulting that you've done. Align's paid you quite a bit of money over the years to talk about its products, right?

A. Can you clarify what you mean by "talk about its products"?

Q. Well, you've served as an educational consultant for Align, right?

A. I have.

Q. And you've done that since 2002, for about 25 years, right?

A. No.

Q. You've been -- you've served as an educational consultant for Align since 2002, right?

A. My role as an educational consultant was in the very beginning, and I -- it was over a period of just a few years. I don't do educational consulting.

Q. Okay.

A. I haven't for a while.

Q. Fair enough, Dr. Valley.

But you served as an educational consultant for Align beginning in 2002, right?

A. Yes.

Q. And you've also served as a speaker for Align, right?

A. That's correct.

Q. And you served as an expert witness for Align in approximately ten cases besides this one, right?

A. I've served for them on a few cases, yes, as an expert witness.

Q. For ten cases, not including this one, right?

A. I'm not sure if it's ten. Something around that. Eight, nine engagements approximately.

Q. And Align is the only manufacturer for whom you've served in those roles, correct?

A. Can you repeat that question?

Q. Sure. Align is the only manufacturer for whom you've served as an educational consultant, a speaker, and an expert witness, right?

A. I don't know if we can count my role as an associate professor in education. There's a lot of courses I taught there too.

Q. The only manufacturer for whom you've served as a consultant is Align, right?

A. I understand. You are correct. Yes.

Q. And that's the only company that you've served as a speaker and an expert witness for as well, right?

A. Correct.

Q. And Align has paid you for serving in each of those roles, right, Dr. Valley?

A. I'm sorry. I didn't hear.

Q. I'm sorry.

Align has paid you for serving in each of those roles, correct?

A. Yes.

Q. Now, there's nothing wrong with a party paying an expert for the time that they spent working on an expert engagement, right?

A. I don't think so.

Q. But you have served in that role for Align on 11 cases, including this one, correct?

A. I don't know if it's specifically 11. I count eight, maybe nine. It depends on how you count.

Q. Okay. Let's turn to your opinions on the '936 patent, Dr. Valley.

You testified during your direct testimony that the '936 patent is directed to something called the eraser tool; is that right?

A. That's right.

Q. And you heard Mr. Kopelman testify earlier today, did you not?

A. I did.

Q. And you heard him say that the '936 patent is

not about intraoral scanning generally, correct?
A. I don't recall hearing that.
Q. He testified that the invention of the '936 patent is not intraoral scanning generally, right?
A. That correct.
Q. It's about a particular rescanning tool, correct?
A. A particular workflow with the scanning system.
Q. The eraser tool, as you described it?
A. That's -- that's the feature.
Q. Okay. And I think you said during your direct testimony that you find that tool very useful, that you use it all the time, right?
A. That is correct.
Q. And that -- that statement is based on your personal use of the eraser tool, correct?
A. Yes.
Q. And to be clear, Dr. Valley, you yourself have only used the iTero maybe 10 to 20 times to actually scan a patient, right?
A. I would say that's incorrect.
Q. You yourself have probably used the iTero scanner to scan a patient's teeth 10 to 20 times, right?

A. May I explain?

Q. Dr. Valley, if you could just answer my question. Your counsel can certainly ask you follow-up questions afterwards.

A. Could you repeat the question?

Q. Yes.

You yourself have probably used the iTero scanner to scan a patient's teeth 10 to 20 times, right?

A. I have directly supervised the scanning of my patients using the scanner.

Q. And I'm asking about your personal use, the number of times that you personally have been the individual doing the scanning.

That's only happened 10 to 20 times, right?

A. Yes.

Q. And you don't know the frequency with which other doctors use the iTero eraser tool, right?

A. I'm not -- I run -- I don't work with other orthodontists. So I can't answer that question.

MS. FERRERA: Okay. Let's pull up the '936 patent, which is JTX-1. It should be Tab 5 in your binder. And it's also Tab 3 in the juror notebooks.

BY MS. FERRERA:

Q. And if we turn to Column 30, do you see Claim 1? Just let me know when you're there.

A. I see it.

Q. And you told the jury that the Virtuo Vivo and SIRIOS scanners infringe Claim 1 of the '936 patent, right?

A. That's correct.

Q. And I just want to make sure we're all on the same page about one thing, that the scanner that you were demonstrating on with your counsel, that's the iTero scanner, right, not the Virtuo Vivo or the SIRIOS?

A. Yes. That is the iTero.

Q. Now, you understand that for infringement, every single element of the claim must be found in the accused product, right?

A. Correct.

Q. And if any one of those elements is missing, then there's no infringement, correct?

A. That is correct.

Q. And so we can agree that the words of the claim are very important, right?

A. They are very important.

Q. I want to talk about the replace limitation that starts at about Line 44 of the claim, but I'd

actually like to show the same slide that you looked at with the jury.

MS. FERRERA: If we could pull up PDX-3.11, please.

BY MS. FERRERA:

Q. And this is the claim that -- the slide that you showed when you were talking about the replace limitation, right?

A. Yes.

Q. And you highlighted the first portion of that claim that's -- ends at "received second scan data."

Do you see that?

A. I see that.

Q. Okay. You didn't highlight the second portion of the claim, though, correct?

A. No, but it's still part of that requirement. It's very important.

Q. It's very important, right?

A. Yes.

Q. And the second portion of the claim refers to: Received second scan data of the patient's teeth including surface data.

Do you see that?

A. I see that.

Q. And the Court did not construe that term,

"surface data," right?

A. I do not believe they did. No.

Q. So you understand that that term, "surface data," must be analyzed from the perspective of a person of ordinary skill in the art, right?

A. That is correct.

Q. And in forming your opinions in this case, you gave a definition of what is a person of ordinary skill in the art, right?

A. Are you referring to my opening report?

Q. Yes.

MS. FERRERA: And if we could pull up DDX-2.

I'm sorry. I'm not sure if we could go maybe one more slide.

There you go.

BY MS. FERRERA:

Q. This is the definition that you provided of a person of ordinary skill in the art, right, Dr. Valley?

A. I'd have to read it.

Q. I'll represent that this is an excerpt from your opening report, Dr. Valley, Paragraph 18.

A. Okay. Then, yes. This is my definition of a person of ordinary skill in the art.

Q. Right. And you agree that under your

definition, you are not a person of ordinary skill in the art on your own, right?

A. I am an optional member of an interdisciplinary team.

Q. But you are not a person of ordinary skill in the art on your own; you'd need to consult with somebody else, right?

A. That is correct.

MS. FERRERA: So let's go back, if we could, to Slide PDX-3.11, which is the replace limitation from Claim 1.

BY MS. FERRERA:

Q. And we talked about the term "surface data," right, Dr. Valley?

A. Yes.

Q. And it's true, is it not, that prior to being retained as an expert in this case, you didn't know what "surface data" meant, right?

A. That is incorrect.

Q. Prior to being retained as an expert in this case, you had never heard the term "surface data," right?

A. I have heard the term "surface data." It could be debatable. I think the term may be used in various fields.

Q. Dr. Valley, we met at your deposition earlier this year, right?
A. Yes.
Q. Okay. And at that deposition, I asked you questions and you gave answers, right?
A. That's correct.
Q. And your answers were under oath, the same oath that you took here today, correct?
A. Correct.
Q. And you had a chance to review the transcript and make changes to it if you wanted to, right?
A. Correct.
Q. And you did that?
A. Correct.
Q. Could you turn in the binder that you were given, Tab 3, to your deposition? And if you could turn to Page 117, starting at Line 20.
A. Tab 3?
Q. Should be Tab 3. Let me know if it's not.
Does that look like your deposition transcript?
A. It is.
Q. Okay. And if you could turn to Page 117, starting at Line 20.
A. Okay.

Q. I asked you the question: Prior to being retained as an expert in this case, you had heard the term "surface data"?

Do you see that question?

A. I see it.

Q. And your answer was: No.

Do you see that?

A. That's correct.

Q. And that's the answer I asked -- the question I asked and the answer you gave under oath?

MS. DURIE: Your Honor, I object. The question and the answer continues through 118, Line --

THE COURT: I think what you're suggesting is under the rule of optional completeness, you'd like the jury to see the rest of that?

MS. DURIE: I would, Your Honor. Thank you.

THE COURT: Okay. You're free to go ahead and finish that.

Counsel, no. Let -- if you would go ahead and let the jury see what's in the next, say, five or six lines.

MS. FERRERA: Certainly, Your Honor.

BY MS. FERRERA:

Q. So your answer was no. And then you said:

Well, it's a general term more so than point cloud data. Maybe I have, but as it relates to this patent, I can't say for sure.

That was your answer, right?

A. Correct.

THE COURT: And if you'd read the next question as well.

MS. FERRERA: Sure.

BY MS. FERRERA:

Q. Sitting here today, you don't recall having heard the terms, either "point cloud data" or "surface data," prior to becoming retained in this case as an expert, right?

And your answer was: I guess I'll say that's correct.

THE COURT: Is that enough of the deposition?

MS. DURIE: It is. Thank you, Your Honor.

THE COURT: Okay.

A. In my deposition, that's what I said. But now it's becoming more --

THE COURT: Ma'am, there's no question.

BY MS. FERRERA:

Q. Now, Dr. Valley, I just have a couple more

questions.

You understand that ClearCorrect has an expert, Dr. Balakrishnan, who's also going to address the '936 patent?

A. Yes. I understand that.

Q. And Dr. Balakrishnan is a person of ordinary skill in the art under your definition, right?

A. That's correct.

Q. And if Dr. Balakrishnan were to testify that second scan data used by the Virtuo Vivo and SIRIOS is not surface data, you wouldn't -- you'd have no basis to disagree with him, right?

A. I'm not sure how to answer that question without being able to explain.

Q. And we can agree that the jury should wait for the opportunity to hear Dr. Balakrishnan before making a decision on infringement, right?

A. Yes. Of course.

Q. And if the jury were to agree with Dr. Balakrishnan that the replace limitation is not met, then there would be no infringement, correct?

A. I -- I would leave that to the jury and the Court.

MS. FERRERA: I pass the witness.

MS. DURIE: Thank you.

REDIRECT EXAMINATION

BY MS. DURIE:

Q. Dr. Valley, just a couple more questions.

How long have you been prescribing Invisalign?

A. I was one of the very first orthodontists in the world to do the Invisalign system. I was fortunate to be kind of at the epicenter of when this all came to be.

Q. And why do you prescribe Invisalign to your patients today when they come in and they want a clear aligner?

A. I have choices. I feel Invisalign gives me the confidence that I can deliver that quality of care that I want for my patients.

MS. DURIE: Thank you. No further questions.

MS. FERRERA: Nothing further, Your Honor.

THE COURT: Thank you, ma'am.

MS. DURIE: May the witness be excused?

THE COURT: Yes, ma'am.

MR. NASH: Your Honor, plaintiff calls Dr. Karan Singh.

(The witness was sworn.)

DIRECT EXAMINATION

BY MR. NASH:

Q. Good afternoon, Dr. Singh.

A. Good afternoon, sir.

Q. Could you please introduce yourself to the jury?

A. Hi. My name is Karan Singh. I'm a professor of computer science at the University of Toronto.

Q. Can you adjust the microphone so it's a little bit closer?

A. I can sit closer to it.

Q. That's perfect.

Can you tell the jury a little bit about your education and your work experience?

A. Sure. So I have a few computer science degrees including a Ph.D. from Ohio State in 1995. I then spent seven years in industry writing computer software before starting as a professor.

At the university, I do research. I teach classes in computer graphics. And I also actively consult in industry in the areas of design, film, and games.

Q. How does your work in film and games relate to your testimony today?

A. Well, the technology, graphics technology in modern film and games shares the same concepts of 3D

scans and models and user interaction that are aspects of the '936 patent in this case.

Q. Have you worked on any of those projects that you're particularly proud of?

A. Over the years, yes, a few. One certainly would be a 3D modeling animation system called Maya back in the late '90s. Maya won a Technical Oscar in 2003, and it's still an industry standard.

And then more recently, I was part of a team that developed a facial animation system based on scans, 3D scans of actors for the film Avatar: The Way of Water.

MR. NASH: Your Honor, at this time, we offer Dr. Singh as an expert in computer science and computer graphics.

MS. FERRERA: No objection.

THE COURT: He'll be admitted.

BY MR. NASH:

Q. Now, Dr. Singh, I think to start, how would a computer science perspective help the jury understand the '936 patent?

A. Well, the '936 patent describes how scanner software should operate relevant to its claims. And as a computer scientist, I believe I'm here to help explain to the jury how that software operates under

the hood.

Q. Well, do you have slides for your testimony today?

A. I do.

Q. You mentioned Avatar.

MR. NASH: So let's bring up PDX-5.1. There we go.

BY MR. NASH:

Q. Now, can you explain to the jury, how are digital models created?

A. Well, as Mr. Kopelman actually explained in his testimony, scanners usually use light reflecting off objects to gather a number of three-dimensional points on the surface of the object. Those points together can be called a point cloud, and that's a digital model. It's a 3D model that's in the computer of the physical object surface.

MR. NASH: Well, let's turn to PDX-5.2.

BY MR. NASH:

Q. And how does what you just described about digital models apply in the context of teeth?

A. So I've tried to make it seem simpler over here. There's a two-dimensional illustration for the purposes of clarity. And you see in gray the physical surface of a physical tooth, and overlaid on that you

see actually three different digital model representations.

So there's a number of points shown in black. That's a point cloud. And these points can be connected with polygons and called a mesh. That's shown in red. These points can also be structured into building blocks along a grid, and that's shown in green.

Q. And do all three of these types of models that you described represent the surface of the tooth in this example?

A. Absolutely. They are all 3 -- 3D digital models of the physical surface of the tooth.

Q. Now, are all three required to model the surface of the tooth?

A. Not necessarily. It depends on the application. Any one can serve as a digital model, or some applications use more than one concurrently.

Q. Now, is that understanding consistent with the '936 patent?

A. Absolutely. The '936 patent's specification explicitly says that the 3D -- virtual model of the 3D digital model can be any 3D representation.

Q. Can you describe to the jury what is -- what is a patent specification?

A. A patent specification is the text before the claims. The text, the figures, all the information on the patent before you get to the claim language that clarifies the inventions.

MR. NASH: Let's go to PDX-5.3.

BY MR. NASH:

Q. And we can use that point cloud example that you mentioned earlier.

What else do you need to consider when you're creating a model, a digital model?

A. Well, you want a model that is appropriate for your application. So if you're working in the context of high-precision orthodontistry, for instance, you would need a really high-resolution model. And I've shown that by a high-resolution scan of points in this case.

Q. Well, we've heard a lot about removing or erasing some data. So let's go to PDX-5.4, and we'll remove some of that data.

What does that do to the model?

A. Well, it leaves some of it behind. And you can call that a retained portion of a model or the retained model.

Q. Now, what if we wanted to add data, like new data to that retained portion of the model?

A. Sure. So if you want to add new data, you need to acquire the new data typically with a scanner. And then you take that new data, and you need to match it with what exists. So you need to align it. And then you need to insert it into that model or combine it. So align and combine essentially is what you need to do.

Q. I see.

MR. NASH: Well, let's turn to PDX-5.5.

BY MR. NASH:

Q. And I want to talk to you about the '936 patent now, Dr. Singh.

Are you here to provide an expert opinion on infringement of the '936 patent?

A. I am.

Q. And what do you understand the accused devices to be?

A. Well, the accused devices are up here on the screen. They're the SIRIOS X3, the SIRIOS 200E, and the Virtuo Vivo scanners.

Q. Now, as a computer scientist, what steps do you take to analyze whether those accused devices infringe the '936 patent?

A. Well, from a high level, I would say three steps. First, I would analyze the '936 patent itself.

I analyze its specification, its claims, to figure out what the claimed inventions, how they expect the accused products to operate.

Next, I analyze accused products and how they operate. And in this context I relied on conversations with Dr. Valley, viewing -- reviewing videos, instruction manuals, other material. And most importantly, I looked under the hood of the software. In other words, I analyzed the source code of the software.

And then finally, as a third step, I saw whether the source code matched the claim requirements that was listed in the claim of the '936 patent.

Q. Well, Dr. Singh, I think you mentioned the word "source code." Can you explain to the jury what is source code?

A. Sure. Sorry. Yes.

So source code at a very high level is a set of human readable instructions that computer programmers write essentially to create software. And basically it's how the software does what it does.

Q. Now, did you review source code for the Virtuo Vivo devices?

A. I did.

Q. And what about for the SIRIOS devices?

A. I did as well.

Q. Okay. Let's look at the claim requirements that you mentioned.

Now, did you review the accused devices with respect to each of the claim requirements here?

A. I did.

Q. I see you've highlighted the replace requirement there towards the bottom.

Do you understand the Court to have provided a definition for that term?

A. I do.

Q. Okay.

MR. NASH: Let's go to the next slide.

BY MR. NASH:

Q. And is this definition we see here, register the received second scan data in blue with a retained portion of model after removing the scan data of the removed surface portion, which you've highlighted in green, do you understand that to be the Court's construction?

A. I do.

Q. And that last part's a little much. Do you mind if I just call that the retained portion of the definition?

A. Sure.

Q. Okay. Did you use this definition in your analysis of the accused devices?

A. I certainly did.

Q. Well, before we get into your analysis, I just wanted to ask, what's the point of this definition?

A. Well, the point of the definition is really something that we've actually seen Mr. Kopelman, Dr. Valley talk about, and as I also just mentioned, you have a model, a portion of it is removed. What's left is the retained portion. And then you get some new data, and you align it and combine it. In other words, you register it with the model. So that's what this claim element requires.

Q. And, Dr. Singh, what conclusion, if any, did you reach on whether the accused devices meet the requirements of this definition?

A. I concluded that the software of each of these devices meets that definition.

Q. Okay.

MR. NASH: Your Honor, at this time, I believe we need to go on to the sealed record. We're going to be looking at source code.

And can we turn off the gallery monitor?

THE COURT: Why don't we do this: Why don't we take our afternoon recess, and we can get

coordinated on the -- to take care of those issues.

MR. NASH: Yes, Your Honor.

THE COURT: Ladies and gentlemen of the jury, we're about to take our afternoon recess. Let me go ahead before we break, though, and quickly tell you that what you're about to hear in the case is information that one side or the other has provided with the understanding that it would not be made public, that it would be in the courtroom, but only the lawyers and the people who are associated with the companies and you, the jurors, would get to hear it.

So at the end of the trial, I just want you to know I'm going to instruct you that you cannot reveal any of the information that you're about to hear while it's under the sealed section of -- I found it's better to tell you before you start hearing it than tell you afterwards and hope you remember what was what, so.

With that limitation I just gave, we will stand in recess for the next 15 minutes.

THE BAILIFF: All rise.

(Jury exited the courtroom.)

THE COURT: You may be seated.

Doctor, you may step down. You can sit there if you'd like, but you're also free to step down.

Mr. Nash, is there anything we need to take up?

I thought we had an issue that you all had with a later witness.

MR. NASH: Your Honor, we were planning to handle the source code, and I believe we reached agreement with the other side by just turning off the gallery monitor here, which we've done.

And then we'll be displaying it on the ELMO a page at a time, and we'll ask Dr. Singh a few questions about it. So there will be a demonstrative the jurors will see, and then they'll, of course, see the ELMO.

THE COURT: So what is you all's understanding, before we get to the point, of what the jury will actually have in terms of the source code as an exhibit? Is it going to be an exhibit? Is it going to only be a demonstrative which they're not going to have? What is -- Mr. Nash, let's start with -- I don't care. I just -- we need to know now what you both think we're doing before we get to the jury deliberations.

MS. FERRERA: Well, I'm not sure if Mr. Nash is actually planning on offering it as an exhibit. I guess that's --

MR. NASH: We are, Your Honor. It's a three-page excerpt.

MS. FERRERA: We have no objection to it being provided to the jury, obviously, with Your Honor's instructions that it's highly confidential and --

THE COURT: Sure. And to make clear, they will not be getting the source code. They'll be getting whatever you all's representation is of the source code that the doctor is going to be talking about.

And the way -- if things go according to the way I think they're going to go, and hopefully what you all, is the only source code or copies of source code that the jury is going to get to deliberate with is something that an expert actually discussed.

And so when -- if and when I get an inevitable note back from the jury about we don't have something we thought we saw at trial and I respond, too bad, keep deliberating, I just want to make sure you all understand what it is that they're going to get because -- and if you do, that's fine.

Any questions about how we're going to do it?

MS. FERRERA: Not from us, Your Honor.

The jury's obviously not going to understand a piece of what's written on that piece of paper. So I think --

THE COURT: You know, I had a lawyer say just that in closing argument. You know, we could have put source code on, but we figured why bother. You all wouldn't understand it. And the foreperson had a master's in computer science. Maybe the lawyer just wasn't there during voir dire. But he told me afterwards he was a little offended by that.

MS. FERRERA: Fair enough.

THE COURT: So never be too sure what the jury will or won't understand, I've learned. So okay. We'll be back in 15 minutes.

THE BAILIFF: All rise.

(Recess taken.)

THE BAILIFF: All rise.

THE COURT: Please remain standing for the jury.

(Jury entered the courtroom.)

MR. HUNG: Your Honor, can we address the issue with respect to the two exhibits --

THE COURT: I thought -- no. We're going to go ahead and go.

(Jury entered the courtroom.)

THE COURT: Thank you. You may be

seated.

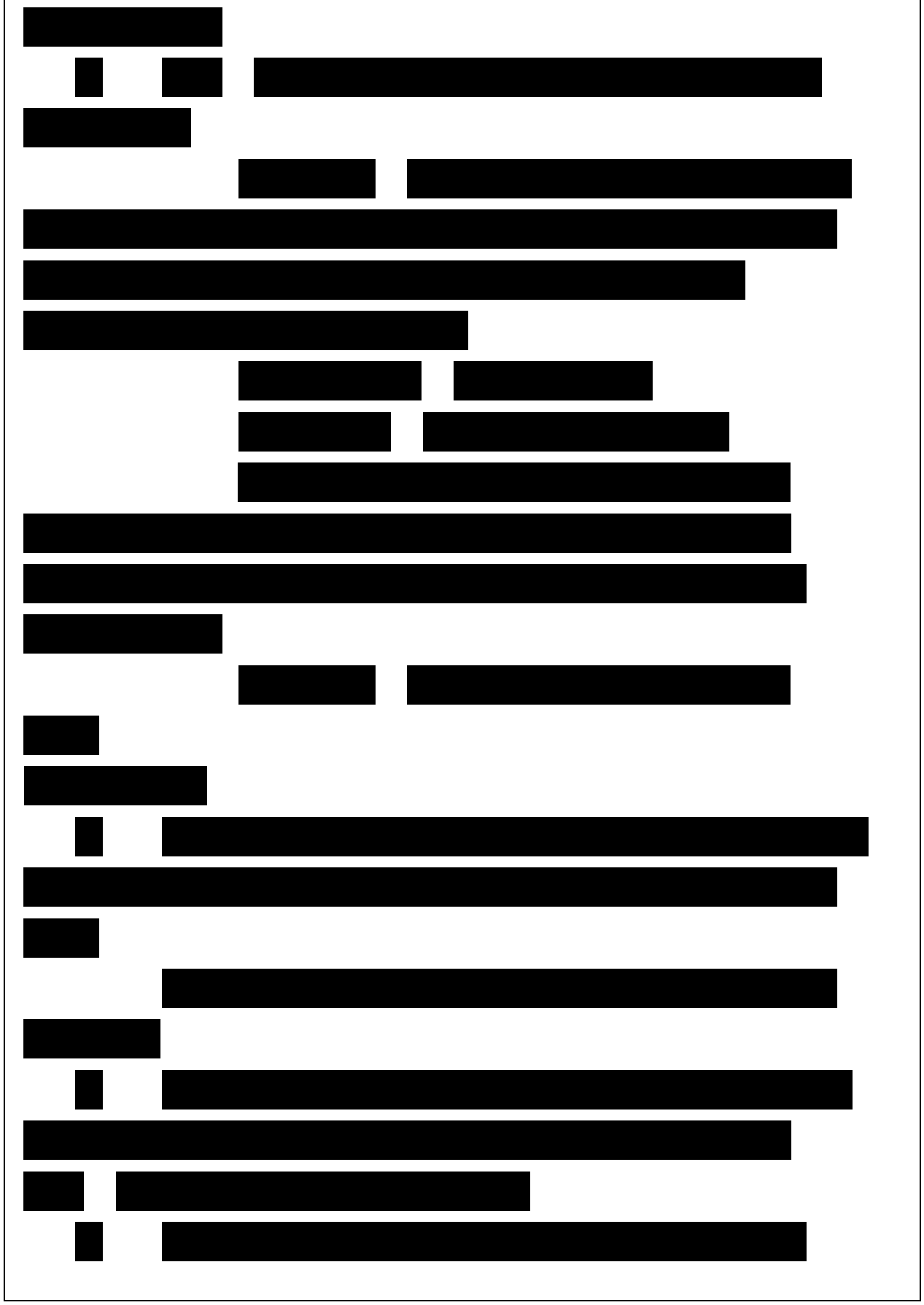
MR. NASH: To confirm, Your Honor, I believe we're on the sealed record now.

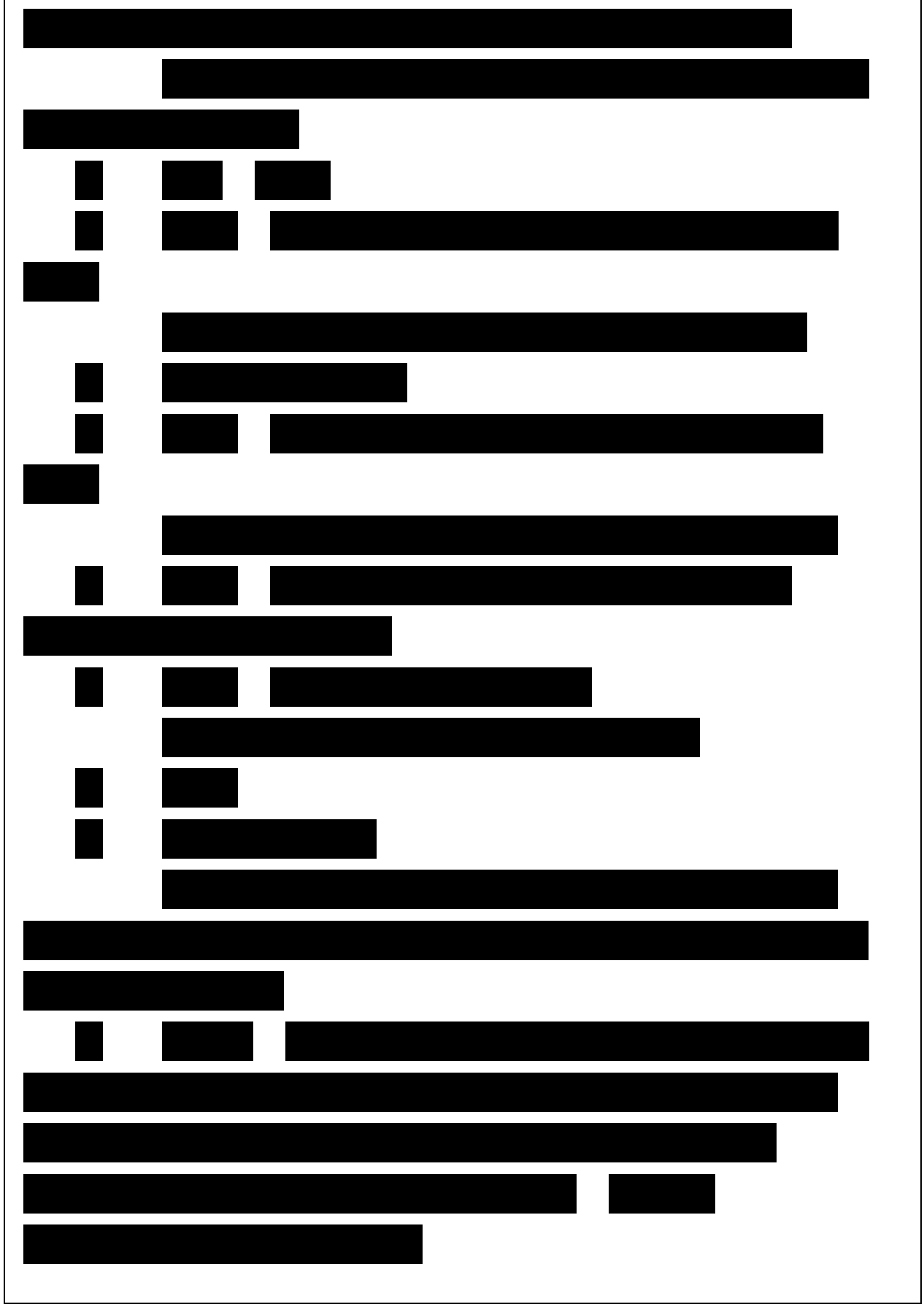
(Sealed proceedings.)

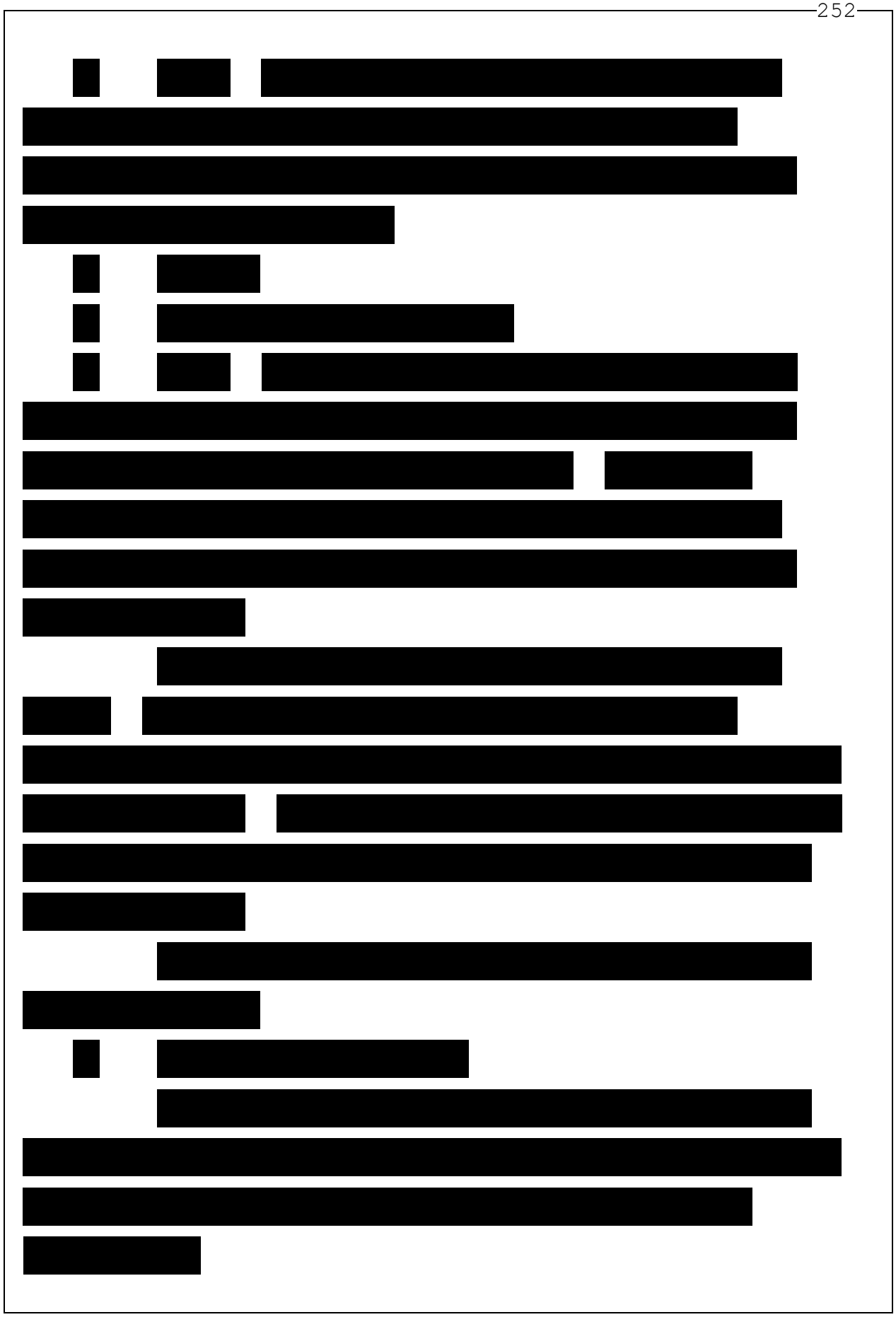
THE [redacted]



about [redacted]







[redacted]

(Sealed proceedings end.)

MR. NASH: Thank you very much for your time, Dr. Singh.

I pass the witness.

CROSS-EXAMINATION

BY MS. FERRERA:

Q. Good afternoon, Dr. Singh.

A. Good afternoon.

Q. You were here for Dr. Valley's testimony a moment ago, were you not, Dr. Singh?

A. I was.

Q. And you heard her acknowledge that she is not a person of ordinary skill in the art on her own, right? She needed to consult with somebody with your expertise, correct?

A. Yes. She used my perspective as a computer scientist.

Q. And you consider yourself to be a person of ordinary skill in the art, right, Dr. Singh?

A. Yes. With the main expertise as needed from an orthodontist.

Q. Right. Because you don't have a degree in orthodontics or dentistry, correct?

A. I do not.

Q. And that's okay because the '936 patent is about 3D modeling, right?

A. 3D modeling in the context of orthodontistry.

Q. Now, to be clear, with the '936 patent, Align does not claim to have invented dental scanning in general, right?

A. Align claims to have invented certain aspects and work flows within the realm of orthodontistry.

Q. Right. But dental scanning existed before the '936 patent, right?

A. In a completely general and -- general sense, yes.

Q. Right. And rescanning existed before the '936 patent as well, right?

A. In a very general sense.

Q. And so in your view, it's the very specific workflow that's described in the claims that is the claimed invention of the '936 patent, right?

A. It always is for any -- any patent.

Q. And so the specific words that are used in the

claim are very important, right?

A. In the context of the patent specification.

Q. Sure. Now, as someone knowledgeable about 3D modeling, you agree that there are different types of scan data, right?

A. There are different types of 3D digital data in general, yes.

Q. Okay. And point cloud data is one type of scan data, correct?

A. Yes.

Q. And surface data is another type of scan data, right?

A. Not true. There is no such word as "surface data" by itself. It has to be described in a context.

Q. Surface data is a type of scan data in the context of the '936 patent, right?

A. Surface data is data that carries information --

THE COURT: Doctor, Doctor.

THE WITNESS: Sorry. Excuse me.

THE COURT: Answer her question.

THE WITNESS: Okay. I'll -- I'll do my best. Thank you.

BY MS. FERRERA:

Q. Right. So my question was surface data is one

type of scan data in the context of the '936 patent, right?

A. It is the scan data in the context of the '936 patent, yes.

Q. And you agree that not all scan data is surface data, correct?

A. I will not agree.

Q. You agree that in a very general context, scan -- not all scan data is surface data, right?

A. That's -- I just testified to the contrary. I just explained that when --

THE COURT: I'll take that as a no.

A. No. Sorry.

BY MS. FERRERA:

Q. Well, Dr. Singh, you gave a deposition in this case.

Do you recall that?

A. I do.

Q. And you were under oath at the time of your deposition, correct?

A. Yes.

Q. Same oath that you gave here today?

A. Yes.

Q. And one of my colleagues asked you some questions, correct?

A. Yes.
Q. And you gave answers to those questions, right?
A. Yes.
Q. Could you turn in the binder that we put up there for you to Tab 4?
A. To which one?
Q. Tab 4.
A. Tab 4.
Q. Let me know when you get there.
A. Yes.
Q. And if you turn to Page 268. Starting at Line 22.
Do you see that? 268.
A. I'm probably not in the right place.
MS. FERRERA: May I approach?
A. It seems to stop at 254.
BY MS. FERRERA:
Q. Let's see. Are you on Tab --
A. Oh, I was on Tab 3.
Q. Tab 4, it should be.
And it's on the -- we can put it on the screen as well if that helps.
A. That's fine. I got it. Yes.
Q. Are you there, Doctor?

A. Yeah.
Q. And if you go down to Line 22 on Page 268.
A. Uh-huh.
Q. And do you see you were asked the question: Do you agree not all scan data is surface data?
Do you see that question?
A. On Line 23?
Q. 22. And it's on the screen as well, Dr. Singh.
A. Yes.
Q. You were asked: Do you agree not all scan data is surface data?
A. Yes.
Q. And your answer was: In a very general context, yes, I agree.
Do you see that?
A. That's right. In the context that is broader than the '936 patent.
Q. And that's -- that was my question.
Now, let's turn to PDX-4.6, which I think is one of the slides you looked at with your counsel.
This is Claim 1 of the '936 patent, right?
A. Yes.
Q. And you understand that for infringement, every single element of the claim has to be met, right?

A. Yes.

Q. And if any one element is missing, then there's no infringement, right?

A. Yes.

Q. Now, let's look at the replace limitation which you have highlighted on your slide.

Do you see that?

A. Yes.

Q. And you highlighted just the first portion of that limitation ending with the words "received second scan data."

Do you see that?

A. Yes.

Q. You didn't highlight the rest of the claim, right, or the claim limitation?

A. Yes.

Q. And in your direct testimony, you didn't talk about the second portion of the claim limitation, did you, Dr. Singh?

A. I did analyze it.

Q. You didn't give any opinion about the second portion of the claim limitation during your direct testimony, did you?

A. I did not.

Q. In fact, the only person in this case who's

04:04 going to talk about that second portion of the
04:04 limitation is ClearCorrect's expert, Dr. Balakrishnan,
04:04 right?
04:04 A. I'm not sure what Dr. Balakrishnan is going to
04:04 talk about, but I have provided opinions to the entire
04:04 portion.
04:04 Q. You didn't give any of that testimony here to
04:04 the jury today, right, with respect to the second
04:04 portion of the limitation?
04:04 A. I actually did.
04:04 Q. During your direct testimony, the only portion
04:04 of the claim that you talked about and discussed with
04:04 the jury was the part that's highlighted on the screen,
04:04 right?
04:04 A. Right. But I --
04:04 Q. That's --
04:04 THE COURT: Doctor.
04:04 BY MS. FERRERA:
04:04 Q. That was my question, Dr. Singh.
04:04 And you know that Dr. Balakrishnan has given
04:04 an opinion about the second portion of the limitation,
04:04 right?
04:04 A. Yes.
04:04 Q. And he's going to come and testify later in
04:04 this case, right? And so the jury will need to wait to

hear his testimony about that second portion before reaching a decision on infringement, correct?

A. Sure.

MS. FERRERA: No further questions. Pass the witness.

MR. NASH: Can we pull up PDX-4.6? And can we zoom in on the entirety of the replace requirement there at the bottom, all the way to the word "and"?

There you go.

REDIRECT EXAMINATION

BY MR. NASH:

Q. Dr. Singh?

A. Yes.

Q. What opinion, if any, do you have on whether the received second scan data includes surface data of a physically changed portion of the patient's intraoral cavity?

A. It is my opinion that that entire phrase is -- is met. The second scan data that we've been talking about, that have been shown prior by Dr. Valley with toothpaste on there, with -- by in conversation with Mr. Kopelman, refers to a physically changed portion that is being rescanned.

So there's -- you had a surface there before.

Now there's a different surface. And so all this portion in red is saying is that in that second scan, you can't just scan something that existed before. You must include in that some portions of a surface that has actually physically changed on the surface of the tooth.

That's all that portion in red is saying, and that is something that I have opined on in my report.

THE COURT: Yes, ma'am.

MS. FERRERA: May we approach, Your Honor? I have an objection.

THE COURT: Sure.

(Bench conference.)

MS. FERRERA: Your Honor, Dr. Singh is giving testimony now that was not in his expert report. He did not give any opinion about what the meaning of surface data in the claim is.

THE COURT: Mr. Nash, where is it in his report?

MR. NASH: He's -- Your Honor, it's -- I believe Paragraphs 41, 42.

THE COURT: Okay. Let's -- you have his report?

MS. FERRERA: I do.

THE COURT: Look up 41 and 42.

MS. FERRERA: 441?

MR. NASH: 441.

MS. FERRERA: I think it's 441.

MR. NASH: 442. And that's also in the context of this Paragraph 470, which incorporates that by reference, Your Honor.

THE COURT: Okay. So 440, 441.

MS. FERRERA: He does not give any opinion --

THE COURT: Have you looked at that?

MS. FERRERA: Yes. He does not give any opinion in those paragraphs about what surface data means. He did not give any opinion about what the plain and ordinary meaning of surface data is. We asked him in his deposition whether he had given an opinion about the plain and ordinary meaning of surface data.

THE COURT: May I see those?

MR. NASH: Your Honor, if I may, it sounds like counsel is trying to contend that he should have offered some claim construction when Your Honor did not provide a claim construction; in fact, said it's the plain and ordinary meaning. He's applying the plain and ordinary meaning to that terminology.

Sorry, Your Honor.

04:09 1 THE COURT: Okay. In 441, just about
04:10 2 halfway down on this page, I would say one -- there's
04:10 3 one reference here that says: CanBeMatchedTo [lines
04:10 4 2172-2177] (is the surface area of the voxels available
04:10 5 for matching is greater than a threshold).
04:10 6 But I don't see where there's any opinion
04:10 7 offered about that.
04:10 8 So where -- Mr. Nash, where are you
04:10 9 saying he offered the opinion that you've just had him
04:10 10 offer?
04:10 11 MR. NASH: Yes, Your Honor. That's
04:10 12 exactly what he's offering is -- so 470 as well. 441,
04:10 13 445, 470.
04:10 14 THE COURT: But where in here? Highlight
04:10 15 in pink for me the part of the paragraph you think is
04:10 16 relevant.
04:11 17 MR. NASH: It's also coming from
04:11 18 Paragraph 469, Your Honor. He discusses taking the
04:12 19 point cloud and converting it into a 3D mesh, and it's
04:12 20 incorporating by reference those prior paragraphs.
04:12 21 And as he's testified to, this point
04:12 22 clouds and the mesh that derives from that constitutes
04:12 23 surface data.
04:12 24 THE COURT: Okay. I see in 464 where he
04:12 25 says: I understand the Court construed "replace at

least a portion of the removed surface portion of the model," and it goes on. Is that part of what you're asking about?

MR. NASH: That's right, Your Honor.

THE COURT: And what is your --

MR. NASH: That's the construction he applied.

MS. FERRERA: Your Honor, what counsel is asking him now is whether or not what he's described is surface data, and he's asking him to explain what the meaning of surface data is.

MR. NASH: No. Actually, Your Honor --

MS. FERRERA: Your Honor, he specifically -- the witness is testifying that "surface data" refers to the physical surface of the tooth, and that's not in his report.

THE COURT: You -- the way you asked your questions on cross, on the one hand, you did just say -- you didn't say anything here about it, but you did not only cross him but impeach him about surface data. And I think Mr. Nash -- you opened the door to Mr. Nash trying to have the expert explain what this issue is about surface data and whether what he did was right.

I'll let you take him on cross afterwards

about this, including whether or not you thought it was adequately in his report or whether he can show where it is.

MS. FERRERA: Thank you, Your Honor.

(Bench conference concludes.)

MR. NASH: Pass the witness, Your Honor.

MS. FERRERA: No further questions, Your Honor.

THE COURT: Thank you, Doctor.

May he be excused?

MR. NASH: Yes, if Your Honor allows it.

THE COURT: I will.

And if -- if there's an issue I need to take up outside of the jury's presence before the next witness, I'm happy to take it up at the bench.

MR. NASH: Thank you, Your Honor.

(Bench conference.)

MR. HUNG: Should I go first?

THE COURT: Whoever's -- whatever the issue is, I'm happy to take it up.

MR. HUNG: So, Your Honor, there's two exhibits that relate to something called Zendura VIVA, and the issue is that we accused Zendura FLX. This is a materials patent case. It's about what these things are made of.

And they -- the VIVA's made of the same materials. On literally December 23rd, 2025, right before the close of fact discovery, they served a rog response where they said, VIVA's a noninfringing alternative.

We said, this is crazy. It's the same material.

So when our expert, Reitman, gave her report, she said, this makes no sense. It's the same material. It's not noninfringing.

They're now saying, no, no. You can't offer that opinion because she can't -- she can't offer this opinion because she never accused it. It's the same material.

MR. MUELLER: I'm not following.

THE COURT: You don't want them to ask about --

MR. HUNG: They don't want me to ask about it.

THE COURT: About it being noninfringing?

MR. HUNG: They don't want me to ask about VIVA.

THE COURT: Are you going to -- Mr. Mueller, are you going to argue that it is noninfringing?

MR. MUELLER: No. No. That was --

(Simultaneous conversation.)

MR. HUNG: They were arguing --

THE COURT: He just said it's not an accused product --

(Clarification by Reporter.)

THE COURT: What is it you are worried about that they're going to put on that's relevant?

MR. HUNG: They are going to say that VIVA is noninfringing. And they literally submitted a rog response where they said that.

THE COURT: It's noninfringing or a noninfringing alternative?

MR. HUNG: Noninfringing alternative.

THE COURT: Okay. And Mr. Mueller just said that he won't do that.

MR. HUNG: Okay. So we're fine not discussing it. And for simplicity, we're not going to change the slides. We just won't ask about it, okay?

MR. MUELLER: I'm not sure about that, Your Honor. Here's the -- the issue is this: The issue is it's now being treated as an accused product by Align. It's not. And I have the infringement contentions right here. The final infringement contentions list the accused product as Zendura FLX.

We're not going to make this noninfringing alternative argument.

THE COURT: They're going to say they accuse this and they're not accusing it?

MR. MUELLER: This is the only one that's accused is FLX. And so the thing should be about FLX.

THE COURT: So what's your problem with that?

MR. HUNG: We'll leave it alone.

MR. MUELLER: Thank you, Your Honor.

MR. HUNG: But I'm not going to change the exhibit.

MR. MUELLER: I don't know what that means.

MR. HUNG: I'm not going to redact the exhibit.

MR. MUELLER: Your Honor, I'm not sure what this means.

THE COURT: I have no idea.

(Bench conference concludes.)

MR. HUNG: All right. Your Honor, we call Dr. Chunhua Li.

(The witness was sworn.)

DIRECT EXAMINATION

BY MR. HUNG:

Q. Dr. Li, good afternoon.
A. Good afternoon.
Q. Can you please introduce yourself to the jury?
A. I'm Chunhua Li. I'm the vice president of material research and development at Align Technology.
Q. How long have you worked at Align, ma'am?
A. 23 years, since 2003.
Q. And can you help us all and can you pull yourself a little bit closer to the mic?
A. Here?
Q. Thank you.
What do you do for Align?
A. I oversee materials research and development work at Align, including Invisalign aligner materials.
Q. Before we dig into your time at Align, let's talk about your background, okay?
Where did you go to school?
A. I went to school in China, Shanghai, China. I got my bachelor degree and Ph.D. in polymer engineering from Donghua University, Shanghai, China.
Q. How did you end up in the United States?
A. My husband came here for his Ph.D. study in 1990. I joined him. We become U.S. citizen in 1999.
Q. Where -- where did you work before Align, ma'am?

A. I started out at Stanford University as a research assistant at -- it's a department of chemical engineering. Then I work for several medical device companies in California, including Abbott.

Q. What did you do for those companies?

A. All my work involved polymers, polymers for drug delivery, like a estrogen patch or nicotine patch or polymers for catheter for heart.

Q. Dr. Li, can we step away from your professional background and talk about you personally? Can you tell the jury about your family?

A. Yes. I've been married to my husband for 37 years. My husband used to work for Lockheed Martin as an engineer on the antimissile defense industry as an engineer. And he worked there for almost 20 years. Then, he now is a full-time elder at the local Christian church.

Q. And do you have children, ma'am?

A. We have three daughters. They all born and raised in California. One lives and works close by as a product designer. Two are nurses in New York City.

Q. All right. Dr. Li, let's talk about Align.

How did you come to join Align in 2003?

A. Align recruited me from Abbott.

Q. And what are your first memories of working at

Align in 2003?

A. It's a very small start-up of -- with cutting-edge technology. So we are working on something very exciting, something have never done before using clear plastic to move teeth.

Q. When you joined Align, what was the clear plastic that Align was using?

A. A material called EX30. EX30's made of Isoplast. It's a thermoplastic polyurethane, a single-layer one.

Q. Was it any good?

A. Yes or no. Actually, it's the best material at that time but was -- have some issues on stress relaxation. What that means is the force kept decreasing over time.

Q. Why is force decreasing over time a problem?

A. The principle for treatment is gentle constant force so the tooth can move predictably. If you have the force keep decreasing, that means that your treatment might take longer.

Q. Did you understand, Dr. Li, as a polymer scientist, why EX30 had this problem?

A. Yes. My Ph.D. dissertation actually was on TPUs. EX30 is a TPU.

Q. And do you have any personal experience as to

why EX30 had this problem?

A. Yeah. Actually, I did the Invisalign treatment was in EX30 aligners. When I first wear the aligner was so stiff, so much force, and then I realized I have a hard time to remove that aligner. But afterwards, the force just decreases really quickly, and a few days later, I don't feel anything anymore. So I really want to improve that material.

Q. And did you solve that problem?

A. Yes. After a lot of studies and the development work and the experiments, at the end we introduced SmartTrack.

Q. All right. Dr. Li, let's pause there.

Tell the jury at a high level, what is SmartTrack?

A. SmartTrack is a new aligner, multi-layer aligner material developed at Align.

Q. When you joined in 2003, had Align already been thinking about multi-layer aligners?

A. Yes. My predecessor Loc Phan actually even apply a patent in 1998 on this idea of a multi-layer, but it's not enough.

Q. Can you look in your binder at an exhibit, DTX-616, and let me know if you recognize that.

A. Yes. That's Loc Phan's patent.

MR. HUNG: I'd like to offer this into evidence.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. Let's see if we can pull this up.

Okay. So here's the patent, and let's call out the date.

Dr. Li, when was this filed?

A. November 30, 1998.

Q. And now looking at Mr. Phan's patent, let's look at Figure 4. What is this showing?

A. Here, you can see several layers of aligner material with dark and the white colors.

Q. And now looking at Columns 8 and 9 of this patent, you'll see a discussion of Example 2. What is the 1998 patent showing?

A. Here, it has four layers. It was polycarbonate -- PVCs or polycarbonate. You can see the polycarbonate is a hard layer, and the PVC is the softer ones here.

Q. Did Align release a multi-layer aligner before you started working on SmartTrack?

A. No. EX30's relatively new for Align at that time. So we continue our focus to really try to

improve EX30 material.

Q. Okay. Go back. When do you recall the SmartTrack project officially kicking off?

A. It officially kick off in 2004 when I come back from my maternity leave actually. So I was asked to lead that project to really looking for a better material to replace EX30.

Q. Okay. Can you turn in your binder to PTX-901? And let me know if you recognize that.

A. Yes. That's my 2004 lab notebook.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: It's admitted.

BY MR. HUNG:

Q. This is the cover, and let's go to a page -- and it's the second page. Let's highlight "Idea."

Do you recognize this idea and can you explain it?

A. Yes. Actually, this is my early brainstorming ideas about how to make a multi-layer aligner material. And you can see here I'm talking about code TPU elastomer polycarbonate. So the TPU layer would give the flexibility and comfort and durability.

Q. What did you do after this February 2004 entry?

A. After this, my team and I set out to really developing and search for the next generation of aligner material. After eight years, we keep doing material after material, development work, and try to put that layers together and put different type of material together. That's how we come to SmartTrack.

Q. Let's show the jury a little bit of this. In your binder is JTX-77. It's a spreadsheet that's printed.

Let me know if you recognize that.

A. Yes. This is a spreadsheet my coworker Yan Chen put together to summarize all the testing we did on all different type of materials that we tested.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. If you could talk about the sheet, and I'm going to pull up the tabs at the bottom. And using those, can you talk about the test that you ran?

A. Yeah. Actually, if you look at the sheet, it has a lot of tabs underneath there. It's a durability, tensile, stress relaxation, working range. Every one of them actually means a certain type of test we did on that material.

We have to develop the material, put them together, become a sheet. Then we do testing, perform all different type of testing on the material.

Q. Okay. Let's look at a couple of these. Let's look at the tensile tab, and let's pull up the end of this.

And can you tell the jury what -- how many tensile test tabs you ran?

A. Tensile testing means that you pull the material, and then you look at how strong the material is and at what point the material will break.

And here, if you look at this sheet, we tested more than 640 samples. A lot of testing.

Q. Let's look at another tab. Let's look at -- let's look at stress relaxation.

And how many tests did you run here?

A. Here, you can see we did more than 300 tests on the stress relaxation.

Q. Okay. Another exhibit, another spreadsheet printed. Look at JTX-79 in your binder, and let me know if you recognize that. 79.

A. Yes. So this is a sheet that my coworker Yan Chen summarized all the different materials. We put -- we did develop together. Also, those are the 269 samples we're really focused on.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. Okay. Let's look at this sheet, and let's pull out the 269.

Does this confirm the samples that you worked on, ma'am, or focused on?

A. Yes. Actually, those are 269 samples that -- which including single layers, softer layers, hard layers, single-layer material, dual-layer material, soft/hard, different combinations and then -- and also different combination of three layers together. We put all different things in combinations too. So this is 269 samples.

Q. Okay. Let's show the jury. Okay? Let's show them some of this. Let's look at Rows Eastman#43 and 44.

What are those?

A. Yeah. If you look at those two samples, actually they have A and B. That means it's two layers. This is a two-layer configuration. And Tritan is a co-hard layer. And then EMAC, that's the copolyester elastomer. So it's a softer layer. So that's a hard/soft combination.

And the second one, it's 190 (sic). Actually, it's a hard polymer with Tritan again and also a TPU elastomer.

Q. All right. Let's show a couple more. Let's look at entries 184 and 185.

What are Eastman#38 and 39?

A. Yeah. Those two are the hard-soft-hard, three layers material, and those both are the hard-soft-hard combination.

Q. All right. Let's look at another one. Let's look at Bayer#16, and then we'll follow that with 34 and 34 again.

What's Bayer#16?

A. Bayer#16 is -- you can see it's another three layers configuration. This one is soft-hard-soft configuration. And Bayer#16 actually used to be our favorite. And then Nos. 34 and -- the 33 line and 34 line is eventually what come into SmartTrack.

Q. All right. Let's talk about your first favorite, okay?

Can you look at PTX-1873. It should be the next exhibit in your binder.

And let me know if you recognize that.

A. Yes. I can see that's a presentation I did on the SmartTrack aligner material in 2009.

MR. HUNG: All right. I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. You see it says "Gen III." What is Gen III?

A. That's an internal code name for SmartTrack. Because we had eight years spend on develop SmartTrack, so we have lot of code name, internal code name for SmartTrack at different times, time frame.

So this is one of the internal code names for SmartTrack.

Q. All right. Let's look at Page 2, and let's blow this out.

What are we looking at here?

A. Here, I'm giving the configuration of the SmartTrack. Actually, you can see here we talk about the two softer layers outside with the TPU elastomers, and the inside layer, the hard layer, is the Tritan copolyester.

Q. Actually, Dr. Li, as of this date, is this Bayer#16 or is this SmartTrack?

A. This is Bayer#16.

Q. Okay. Let's look at the third page. Okay?

04:31 Confirming Bayer#16, what do we see?

A. Here, we're doing comparison between EX30 and the Bayer#16. You can see actually Bayer#16 looks really good, have a lot of green color. That means it's really meet our performance requirement. Slightly lower in cycles for durability. So except that test.

Q. What does "durability" mean?

A. Durability -- so for aligners, because these are removable, so you do insertion, removal every day when you try to brush your teeth and then eat meals.

So the durability measures how many cycles you can do that before it cracks or deforms. So that's the durability definition.

Q. Okay. You said this was pretty good. Why didn't you stay with this?

A. Pretty good is not good enough for us. At that time we really wanted to come up with a best material for Invisalign aligners.

Q. All right. Let's -- we'll dig into exactly what SmartTrack is in a second.

But at a high level, what are the two materials?

A. The two material is the -- a hard copolyester layer, was the -- was the Tritan copolyester, and then also a soft TPU layer was Desmopan for SmartTrack.

Q. In your binder is PTX-405. And let me know if you recognize that data sheet.

A. Yes. I recognize this as a Desmopan technical data sheet.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection.

THE COURT: Admitted.

MR. HUNG: And, Your Honor, we'll be going on to the sealed record for this.

(Sealed proceedings.)

BY MR. HUNG:

Q. [redacted]

[redacted]

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. [redacted]

[redacted]

MR. HUNG: All right. We can go back on the public record.

(Sealed proceedings end.)

BY MR. HUNG:

Q. All right. Let's look at another exhibit in your binder, PTX-1874.

A. Yes.
Q. Do you recognize this?
A. Yes. That's another SmartTrack presentation I did in 2011.
MR. HUNG: I'd like to offer this.
MR. MUELLER: No objection, Your Honor.
THE COURT: Admitted.
BY MR. HUNG:
Q. All right. Let's look at this presentation.
And first for the jury, what is LE-30?
A. Another internal code name for SmartTrack.
Q. All right.
MR. HUNG: Let's look at the next slide and let's blow this up.
BY MR. HUNG:
Q. What did you find out about SmartTrack's performance?
A. Here, actually I summarized the -- of the advantages of SmartTrack. You can see we talk about initial insertion force is lower and better stress relaxation and longer working range. All around it's better than EX30.
Q. Okay. Let's look at stress relaxation, okay?
MR. HUNG: Let's go to next page, and let's blow this up.

BY MR. HUNG:

Q. What do we see about stress relaxation for SmartTrack compared to the old one, EX30?

A. Yeah. Actually what we did on this testing is we make EX30 aligner. We also make a SmartTrack aligner. So we put on a test setup to really monitor the force applied to the tooth over five days' time.

So you can see with EX30, actually at Day 5, you only have 10 percent force left. While SmartTrack, you had more than 50 percent force left. So this is a very huge improvement.

MR. HUNG: Okay. Let's look at the next slide.

BY MR. HUNG:

Q. This is referring to a pilot study, a pilot launch.

And can you explain the pilot launch?

A. Yeah. Because the bench on the laboratory testing, we can see SmartTrack performs so well, we really want to see in patient's mouth in clinical settings, are they still perform as well as what we saw in lab? So we really set up to do more than 1,000 patients study, have real patients who wear this for treatment. That's the studies. We launch a study in May 16, 2011.

MR. HUNG: Okay. Let's go to Slide 14.

BY MR. HUNG:

Q. And let's -- TREX, it's in reference to TREX. What is TREX?

A. Another internal code name for SmartTrack.

Q. Okay. And what is this slide showing about upper extrusion for SmartTrack?

A. I told you about the pilot study with the 1,000 patients. So after like 20 weeks' treatment, we got some scans back. Then we do analysis on those scans to see how the SmartTrack aligners really did the treatment.

So here, this graph shows for upper teeth. That means that your front teeth here, when they do extrusion, pull the tooth a little bit out to align them, you can see the SmartTrack aligner performs so much better than EX30 aligner. So if you look at Tooth No. 7 and Tooth No. 10, and you can see actually absolutely numbers. We're talking about 40 percent improvement. That's huge.

Q. All right. What did you find for rotation?

A. Rotations, that means you turn the tooth a little bit to align them to be in the better position. And here, you also see the SmartTrack aligner performed, improved definitely compared to EX30

aligners.

Q. Okay. There's another exhibit in your binder, an announcement, PX-1875.

Do you recognize that?

A. Yeah. Actually, this is SmartTrack's announcement, when we launched SmartTrack.

MR. HUNG: I'd like to offer it.

MR. MUELLER: No objection.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. Now I can show you -- or I can show the jury.

Okay. What is this?

A. Well, this is a picture of SmartTrack aligners, and also we mentioned that even in our initial launch, we said over the past eight years, our research and development program have been working tirelessly to develop SmartTrack.

Q. Now, ma'am, go back in time.

When did you release SmartTrack?

A. We announced that to -- in October 2012 and delivered to our customers -- it was SmartTrack aligners in January 2013.

Q. Dr. Li, let's switch to the patents. How many do you have?

A. I have more than 100 patents with 10 -- more than 10 for SmartTrack alone.

Q. Are you personally involved with obtaining patents before the Patent Office?

A. A little bit. From time to time, my patent attorney will come to me with documents to review and sign.

Q. Okay. Look in your binder at DTX-72. And let me know if you recognize that patent.

A. Yes.

MR. HUNG: We'd like to offer it.

MR. MUELLER: Your Honor, just maybe ask a bit more foundation.

MR. HUNG: Oh, sure.

BY MR. HUNG:

Q. What patent is this, DTX-72?

A. That's our first SmartTrack patent.

MR. MUELLER: No objection.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. Let's look at it.

And let's -- okay. When did you file for this patent, ma'am?

A. May 14, 2012.

Q. And if you look on this patent, you'll see

inventors, yourself, Yan Chen, and all these other people.

Who are all those other people?

A. Heinz, Klaus, Joerg, and the Craig are people from Covestro. They used to be called Bayer. And we work with them. So they are our current SmartTrack supplier.

Q. Now, now you get to dig in a little bit.

Can you explain to the jury what you invented in these patents -- in this patent?

A. We invented a very specific recipe to combine a copolyester with certain modulus, and modulus has to be more than 150,000 PSI. And then also a TPU elastomer with elongation break more than 200 percent, and the hardness has to be between 60A to 85D. And the material, you put them together, a layer, different layer configurations. Actually, you can get to material that perform as aligner material really well, not neither material alone can do.

Q. What does this combination help treat? Why is this good for patients?

A. The co-layer, actually the hard layer of copolyester, really deliver the force, gentle constant force to really control tooth movement. And while the TPU elastomer layer give you the flexibility,

durability to make sure you have that longer working range too.

Q. Does this help you treat harder cases?

A. Yes. Actually, SmartTrack -- since SmartTrack's launch, we can treat much more complex cases.

Q. All right. Please turn in your binder to DTX-462, a declaration.

Let me know if you recognize that.

A. Yes. I recognize this.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

BY MR. HUNG:

Q. Okay. Dr. Li, here's a declaration. And why did you submit this declaration to the U.S. Patent Office?

A. The Patent Office rejected our application, and the -- I submitted this declaration to expand our invention to the Patent Office.

Q. Was this declaration for the patent that we just looked at?

A. Yes.

Q. And let's look at the second page of this declaration. And you'll see there's a reference to Chen and DeSimone.

Who are they?

A. Chen is my coworker, Yan Chen. And DeSimone referred to Joe DeSimone, who used to be Align consultant.

Q. Why are you talking about your coworkers or Align employees in this declaration?

A. The Patent Office rejected our application -- patent application because he saw that the -- our patent invention was obviously in view of things Yan or Joe has done for aligners.

And I just want to explain to the Patent Office that I have been working with Yan and Joe all the time on the development work. So I want to tell the Patent Office that our invention's something really different.

Q. All right. In your binder of four patents, jump to it, they're the material patents. You could take a look and see if you recognize those, JTX-2, 3, 4, 5.

A. Yes.

MR. HUNG: I'd like to offer the four patents.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. Let's put these up, and let's pull out the S&E.

Dr. Li, what are these four patents?

A. Those are additional patent we received base on the 2012 SmartTrack patent applications.

Q. Who owns these?

A. Align does.

Q. All right. Let's look in your binder at DTX-84, another declaration there.

Do you recognize that?

A. Yes.

Q. What is this?

A. This is another declaration I submitted to the Patent Office.

Q. Did you submit it for the '613 patent?

A. Yes.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. Dr. Li, is this the same declaration you submitted earlier?

A. No. Different one.

Q. Why?

A. Because the Patent Office still reject my

applications for the '613 patent. So we submit this again to explain to the -- to the Patent Office about the invention. And this is actually declaration for the different applications with -- '613 applications. It was different type of claims, so we tailor this declaration towards that application.

Q. I'm going to point to a statement, Dr. Li, and I'm going to read it to you. This is from Paragraph 4. It states: I would expect that the presence of only two such layers, a hard and soft polymer layer -- a hard polymer layer and a soft polymer layer, according to the current claims, would also provide beneficial and surprisingly superior properties of elongation, time stress-relaxation, durability, and thermoform ability.

Was that true?

A. Yes. Like what I mentioned, the key to SmartTrack is the -- you have a hard copolyester layer to deliver that gentle constant force. Then you have a elastomer, TPU elastomer to give you that flexibility and durability. The two in combination actually provide the material that's better than EX30.

Q. Were you saying that all multi-layer materials that you invented have to have all these properties of elongation, time stress-relaxation, durability, and

thermoform ability?

A. No. That's not what I'm saying. I'm talking balance of the property. If you remember, when we talk about Bayer#16, that was one of our favorite. Actually, the durability was not as good as EX30. So we normally look at aligner material, look at the overall balance of property.

Q. I expect that we will hear at some point an allegation that you misrepresented yourself, Dr. Li. Did you tell the truth in this declaration?

A. Absolutely.

Q. Do you stand by every word today?

A. Yes.

Q. One last question on the patent process. I suspect this will come up.

We looked at those two huge sheets, those sheets that you and Ms. Chen worked on. Why didn't you submit those to the Patent Office?

A. I don't think it's relevant. I have never submitted raw data sheets like that to the Patent Office for my other applications.

Q. All right. Dr. Li, let's change topics to a company called Bay Materials. Okay?

Do you know a company called Bay Materials?

A. Yes. I know them since I joined Align in

2003.

Q. When you joined, what did you know about them?

A. They were our middleman for EX30. So my predecessor Loc hired Ray Stewart as a consultant for Align to develop and select EX30 material. Then later on they take that material. They want to be the middleman to handle the purchasing of that material. So they don't manufacture that material. So they get somebody make -- to make that material. They do quality check. Then they resell that to Align.

Q. Is Align still working with Bay Materials?

A. No. We ended the relationship in 2006.

Q. Why?

A. They have some supply chain issues. They also have quality control issues, that they also charge us huge markup with that just quality check. So we went to a more reliable direct manufacturer of the EX30 material.

Q. Do you know what Bay Materials did after the relationship ended?

A. They call -- EX30 become their Zendura A. Then they sell that material to our competitors and dental labs.

Q. All right. Dr. Li, at some point, you learned that Bay Materials had released a new product called

Zendura FLX, right?

A. Yes.

Q. When did you learn about that?

A. Late 2018 or early 2019.

Q. What did you do?

A. So we obtained a sample. We tried to do testing on it to see what they're made of.

Q. Can you look at DTX-0956, an e-mail?

Let me know if you recognize that e-mail.

A. Yes.

MR. HUNG: I'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. Okay. Here's the e-mail. And let's blow out your discussion.

What are you discussing here, ma'am?

A. Here, this is our first -- after we did a test on the Zendura FLX, we confirm actually they have exactly same hard copolyester as what we have, Tritan, and also the soft TPU layer elastomers were used. So I was like, okay. They use the same material as we are.

Q. All right. Let's advance a page. And let's highlight this.

Okay. What were -- did you have a view as to

whether you thought Zendura would be as good as SmartTrack?

A. No. Because at that time their module was a little bit lower. So we think their forces might not be as good as SmartTrack.

Q. There's another document in your binder, PTX-1877. Let me know if you recognize that presentation.

A. Yes. That's my team's internal testing summary about the Zendura FLX.

MR. HUNG: We'd like to offer this.

MR. MUELLER: No objection, Your Honor.

THE COURT: Admitted.

BY MR. HUNG:

Q. All right. Let's go to Page 4.

And what did your team find when they did their internal testing?

A. So this is a fingerprint test, chemical compositions of the polymers for the FLX material.

So if you look at this, my team's conclusion is that they used the Tritan, the same hard layer we used, and they used Texin, which is TPU elastomer, same as us. And they used another Tritan, same as us.

So the -- we identified, confirmed, that they used the same material as us.

04:50 Q. Okay. Let's go to Page 10.

And what did you find with respect to stress relaxation?

A. Here is a stress relaxing test result that you can see they're very similar result from Zendura FLX to SmartTrack.

Q. Did you have a view at that time as to why these results were similar?

A. Yes. Because they use exactly the same material.

Q. Dr. Li, how did that make you feel?

A. I was upset. I feel like my team and I spent eight years of our life doing material research and development work and testing after testing and experiment after experiment to really come up with SmartTrack, with that invention. And they have a thousand different materials they can pick out. They picked exactly the same material as us, and I feel like they take our invention away.

Q. Do you know which companies are making aligners with Zendura FLX today?

A. Quite a lot. Spark, ClearCorrect, and Angel.

Q. Dr. Li, are you proud of the work that you've done for Align?

A. Yes. I'm very proud what my team and I did on

SmartTrack, and SmartTrack aligner has treated more than 21 million patients including my daughters. All my daughters did the Invisalign treatments. And I think it's very important invention for clear aligners for Align, and I'm very proud to be part of that.

MR. HUNG: Thank you, Dr. Li.

Pass the witness.

CROSS-EXAMINATION

BY MR. MUELLER:

Q. Good afternoon, Dr. Li.

A. Hi.

Q. My name is Joe Mueller. It's nice to meet you. May I ask you a few questions?

A. Sure.

Q. Now, Dr. Li, you said a few times in the last few minutes that SmartTrack and Zendura FLX use the exact same materials.

Do you recall those questions?

A. Yes.

Q. And you're referring to materials like Tritan, right?

A. Yes.

Q. What is Tritan?

A. Tritan is a copolyester.

Q. And who makes Tritan?

A. Eastman.
Q. Eastman, which is a different company, right?
A. It's a chemical company.
Q. It's a chemical company. And Eastman offers Tritan to anyone who wants to buy it, right?
A. Right.
Q. Align doesn't own Tritan, am I right, Dr. Li?
A. No.
Q. The TPU layers, where do those come from in the -- in the -- let's keep ourselves for right now in the SmartTrack product. Where are those materials from?
A. TPU could be coming from any of the chemical companies who sell TPU elastomer, so TPU polymers.
Q. And those TPUs, those materials are supplied by third parties, true?
A. Yes.
Q. And they're available to anyone, right?
A. Right.
Q. And so the mere fact that someone's using Tritan, the mere fact that someone's using Tritan doesn't mean they're using your ideas, true?
A. Yes or no. There are a lot of type of copolyesters.
Q. Dr. Li, Eastman makes Tritan, not Align. Am I

right?

A. Correct.

Q. Eastman offers Tritan to the world to do whatever they want with it, right?

A. Right.

Q. The TPUs are offered by various chemical companies, not Align, correct?

A. Correct.

Q. And they're offered to the world, correct?

A. Yes.

Q. And so the fact that a company uses Tritan or uses TPU just means they're using chemical materials available to the world, right, Dr. Li?

A. Yes.

Q. Okay. Now, you understand there's lots of different ways these materials can be used, true?

A. Yes.

Q. And in the context of dental aligners, the field that you've worked in, it can be unpredictable how these chemical materials might interact with each other, fair?

A. Not really.

Q. You don't think it's fair to describe materials used in dental aligners as unpredictable. Is that fair or not fair?

04:55 A. I think your question is very compounded.
04:55 Q. Well, let me try it again.
04:55 Dr. Li, do you think that it is not predictable, not predictable the way in which materials in dental aligners function?
04:55 A. That's a true statement.
04:55 Q. Okay. That's a true statement.
04:55 And so it takes a lot of trial and error to find materials that will work effectively together for dental aligners, right?
04:55 A. Right. That's why it took us eight years to find that material.
04:55 Q. Dr. Li, it takes a lot of trial and error to find a configuration of materials that will be effective, true?
04:56 A. True.
04:56 Q. And one configuration, the configuration that was ultimately sold as SmartTrack, has a soft material in the outer layers, correct?
04:56 A. Correct.
04:56 Q. And a hard material in the inner layers, right?
04:56 A. Right.
04:56 Q. Now, to be clear, those raw ingredients used in SmartTrack came from third-party companies, these

chemical companies, right?

A. That's always the case.

Q. Dr. Li, they came from third-party companies, true?

A. That's always the case. Yes.

Q. Okay. And those -- and the way in which you and your colleagues chose to combine them was soft-hard-soft, right?

A. For SmartTrack, that's the case.

Q. And that was the result of hundreds of experiments that you did, various trial-and-error experiments to find a configuration that would work effectively for dental aligners, true?

A. We choose the best for SmartTrack.

Q. Dr. Li, if you could please -- if you understand my question.

You did hundreds of experiments, trial and error, to find a configuration that worked effectively for dental aligners, and what you arrived at was soft-hard-soft, true?

A. That's the best among the 269 test samples.

Q. Now, you and Mr. Hung went through a lot of test data very quickly. I'd like to go through it a little bit more slowly and ask you a few questions about it.

04:57 In the years that you worked on research and development that led to SmartTrack, as you said, you did well over 200 experiments, correct?

A. Correct.

Q. Over 200 different configurations of materials, right?

A. Yes.

Q. Some of them were single layer, just one layer, right?

A. Yes.

Q. Some were two layer, true?

A. Yes.

Q. And some were three layer, correct?

A. Yes.

Q. And what you did in some of those spreadsheets that you went through is you listed various types of criteria for how to judge the quality of these differentiations, fair?

A. We have some requirements, fair.

Q. And the requirements included things like durability metrics, true?

A. True.

Q. And others as well. And we're going to get into some of them.

But you had various criteria by which you

judged these experiments that you performed, right?

A. Yes.

Q. And again, it wasn't predictable. It was not predictable, not predictable what was going to come out of these experiments, right?

A. Yes.

Q. Okay. But you did the experiments, and you ultimately arrived at soft-hard-soft for SmartTrack?

A. We choose the best.

Q. Dr. Li, SmartTrack, soft-hard-soft, correct?

A. We choose the best. Yes. That's the SmartTrack configuration.

Q. Soft --

A. But we also tried hard-soft-hard.

Q. Dr. Li, if you'll please just answer my question.

SmartTrack, which you ultimately arrived at and sold to the market, is soft-hard-soft, correct?

A. Yes. That was the best.

Q. And you understand, Dr. Li, that the accused product in this case, the ClearCorrect aligners that contain Zendura FLX, use hard-soft-hard, right?

A. Yes.

Q. Now, let's go to tab -- find it in your binder, if you could, please, Dr. Li. And let me know

when you're there. Tab 5.

A. Yes. I'm there.

Q. And this is a set of slides titled Gen III Sleep Aligner Material Project Update. It's DTX-0285.

Do you see this, Dr. Li?

A. Yes.

MR. MUELLER: And, Your Honor, I'm not 100 percent sure if this was admitted as part of the set by Mr. Hung, but I offer it.

MR. HUNG: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. This relates to the work that you did in the development process, that trial-and-error process, that led to SmartTrack, correct?

A. It's a part of our development update.

Q. And you worked in this time period, those years of trial and error, with at least 19 third-party companies to find materials that you could use in these various configurations, right?

A. Yes.

Q. And as we -- you talked about, you did -- you performed hundreds of experiments on different configurations, correct?

A. Yes.

Q. And you tracked the results, true?
A. We do.
Q. And you listed various criteria in these spreadsheets that you compiled which listed how these materials did according to tests that you ran, right?
A. Yes.
Q. And for some of them, your spreadsheets included reasons to reject, correct?
A. Yes.
Q. And you ultimately selected Bayer#16, which became SmartTrack, correct?
A. Correct.
Q. Now, you compared many of these materials to the older EX30 material that had been used in an earlier version of Invisalign, right?
A. Yes.
Q. And after you identified this soft-hard-soft that in your view was the best, you sought patent protection for the ideas that you had come up with, true?
A. Yes.
Q. And you went to the Patent Office and filed patent applications, correct?
A. Correct.
Q. Now, if you could, Dr. Li, if you could turn

to Tab 11 in your binder.

A. Yes.

Q. This is DTX-462.

MR. MUELLER: And I believe this was admitted with Mr. Hung, but just to be safe, I'm going to offer it again, DTX-462.

MR. HUNG: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. This was a declaration that you submitted to the Patent Office. And do you see it says: Declaration of Chunhua Li, Ph.D., right, Dr. Li?

A. Yes.

Q. And this was something that you submitted under oath. You swore to tell the truth in this declaration, right?

A. Yes.

Q. Let's go to Paragraph 3, numbered Paragraph 3. And here, here, I want to go midway through. Moreover, the appliances -- and that refers to dental aligners, right, "appliances"?

Is that right, Dr. Li?

A. Yes.

Q. The appliances recited in the claims of the '681 application exhibit unexpectedly positive results

over previously known appliances.

Do you see that, Dr. Li?

A. Yes.

Q. And then if we go to the very next paragraph, this has the Roman numeral title right above it: Not Predictable.

Do you see that, Dr. Li?

A. Yes.

Q. And I asked you a couple of minutes ago whether the technology on which you did trial-and-error experiments was not predictable, and I believe you said it was, right?

A. Correct.

Q. And you said the same thing to the Patent Office in this declaration, correct?

A. Yes.

Q. You said "not predictable," and just knowing what materials are going to go into a configuration doesn't necessarily allow you to predict how effective the aligner will be, right?

A. Yes.

Q. And that's why you needed to do the hundreds of experiments, the trial and error, to see what would work and what would not, true?

A. We also did the clinical study.

Q. And what you arrived at as a function of all those experiments and your hard work, the hard work of you and your colleagues, was soft-hard-soft as the SmartTrack product, true?

A. With a specific chemical composition.

Q. Now, let's look at exactly what you said to the Patent Office. And actually, before we get into the substance, if you just go to the date on the last page where you signed this really quick, this Page 8. This is back in November of 2016.

Do you see that?

A. Yes.

Q. Okay. So let's go to Paragraph 4. This is ten years ago. And back in 2016, you said that: Several years ago, Align Technology set out to develop a product that could replace its single-layer, thermoplastic polyurethane appliance product (referred to herein as "EX30").

If we go down to the sentence -- two sentences down: Over the course of more than seven years, Align worked diligently to develop a suitable appliance that would meet various criteria for effective orthodontic treatment.

That was true?

A. True.

Q. You went on to say: During this development process, my team evaluated, in an iterative fashion, more than 250 distinct materials and/or material combinations for possible use in an improved appliance device.

And this is a reference to all those experiments, the trial and error that you conducted, true?

A. Yes.

Q. You went on to say: After years of development, Align produced the SmartTrack material (also referred to herein as "ST30"), which is a product according to the instant claims comprising a layered material with a hard copolyester layer between two soft layers of thermoplastic polyurethane elastomer.

And so you said explicitly to the Patent Office in this declaration, SmartTrack was the result of all this trial and error, correct?

A. That's a description of SmartTrack.

Q. And what you said in particular was that the instant claims, and that means the claims in this particular patent application, right?

A. It is that patent.

Q. And this is the application that you described to Mr. Hung as the SmartTrack patent.

Remember that?

A. Yes.

Q. And this is the SmartTrack patent. And it describes instant claims comprising a layered material with a hard copolyester layer between two soft layers of thermoplastic polyurethane elastomer.

Now, you went on to say: We found that the resulting orthodontic appliances incorporating the SmartTrack material had surprisingly superior properties of modulus of elasticity, elongation, time stress-relaxation, durability, and thermoform ability. Each of these properties is important for the production of appliances to apply orthodontic, teeth-moving forces in an oral environment.

Do you see that, Dr. Li?

A. Yes.

Q. And of course, all this was true, right?

A. Of course.

Q. Now, in this declaration, Dr. Li, you did not say to the Patent Office, We have discovered that just having two different materials results in an effective dental aligner, right?

A. This is a declaration. Yes.

Q. You did not say that in the declaration?

A. We're talking about SmartTrack. We're talking

about SmartTrack.

Q. Dr. Li, if you could please just -- my question is this: In this declaration from ten years ago when you began filing patent applications after conceiving of SmartTrack, you did not tell the Patent Office at that time, We have realized that having two different materials in a dental aligner results in an effective aligner, right?

A. Not in this declaration.

Q. Nor, Dr. Li, nor, Dr. Li, did you tell the Patent Office ten years ago that you had developed an effective hard-soft-hard dental aligner, correct?

A. The first patent claims already covers that.

Q. Dr. Li, if you'd please just stay with my question.

In this declaration ten years ago, you did not tell the Patent Office that you had developed an effective hard-soft-hard aligner, right?

A. I think the patent application is not just depending on one declaration. It also have other, all the patent applications with associated files associated with that application.

Q. Dr. Li, please. In this declaration from ten years ago, you did not tell the Patent Office, did not tell the Patent Office that you had developed an

effective dental aligner with a hard-soft-hard configuration, correct?

A. This declaration is for SmartTrack.

Q. Dr. Li --

A. Which is a soft-hard-soft.

Q. I'm sorry. I didn't catch that answer. Would you say it one more time, please?

A. This is for SmartTrack patent.

Q. Soft-hard-soft?

A. Yes.

Q. Not hard-soft-hard?

A. No.

Q. And this declaration nowhere says that you had developed an effective hard-soft-hard aligner, correct?

A. Not this declaration.

MR. MUELLER: Your Honor, I'm going to shift subjects. It might be a good time for the evening break if Your Honor's inclined?

THE COURT: How much longer do you have with her?

MR. MUELLER: I'm not sure, but it's more than -- more than 10 minutes. It's probably 15 or 20.

THE COURT: Would you all like to stay and finish this witness?

Okay. Let's keep going.

MR. MUELLER: Okay.

BY MR. MUELLER:

Q. All right. Let's do this, Dr. Li. Let's fast-forward to 2018 when Zendura FLX was released to the market. And at that time, that's just the product made by Bay Materials with the hard-soft-hard configuration, right?

A. Uh-huh.

Q. And you studied that product, correct?

A. We did assessment.

Q. You did reverse engineering of it, right?

A. I didn't do reverse engineering.

Q. Okay. Well, let me show you a couple of documents here. But you and your colleagues did reverse engineering on Zendura FLX, correct?

A. No.

Q. Well, let's take a look at -- if you go to Tab 20 in your binder. This is an e-mail and attachment that you received on May 7th, 2019, right?

A. Yes.

Q. It's from Yan Chen, one of your co-inventors on the patents at issue in this case?

A. Yes.

MR. MUELLER: Your Honor, I offer it.

MR. HUNG: No objection.

THE COURT: Admitted.

BY MR. MUELLER:

Q. And I'd like to go to the attached meeting minutes which are attached to this e-mail. These are minutes from an in-person meeting that you attended in April of 2019 with Covestro, right?

A. Yes.

Q. And you were working with Covestro at that time, correct?

A. They are our supplier of SmartTrack.

Q. So let's go to the bottom row on Page 3. Last row. It says: For better understanding, film performance stack lamination will be used for reverse engineering of Zendura FLX.

Right?

A. This is what we're talking about, how to do assessment of SmartTrack. Also the FLX.

Q. Dr. Li, Covestro was your supplier for the SmartTrack material, correct?

A. Yes.

Q. This is referring to a meeting that you had in 2019 with Covestro, correct?

A. Yes.

Q. And the meeting minutes, the record of what happened at that meeting, reflect that there was a plan

to conduct reverse engineering of Zendura FLX, true?

A. You have to think about what --

THE COURT: Ma'am, you need to answer his question.

A. Not true.

BY MR. MUELLER:

Q. So the meeting minutes were wrong?

A. No. That reverse engineer has different meaning.

Q. Now, let's go to DTX-220, which I believe is in evidence.

And this is the e-mail that you discussed with Mr. Hung, correct?

A. No. I'm not in this e-mail.

Q. Okay. If we -- I'm going to --

MR. MUELLER: Actually, I will offer this. I thought you used it.

MR. HUNG: Yeah. She's mentioned later. I don't object. That's fine.

MR. MUELLER: Okay. So we offer it, Your Honor, just so the record is complete here.

BY MR. MUELLER:

Q. And this is a discussion of testing Zendura FLX for full assessment and working to provide competitive claims to the competitive marketing team.

Do you see that?

A. Yes.

Q. And you were involved in this competitive analysis of Zendura FLX, right?

A. Yes.

Q. And first it says Bay Material reversed the layer configuration. So instead of soft-hard-soft, it had the reverse, hard-soft-hard?

Do you see that?

A. Yes.

Q. And that's true. It was hard-soft-hard, not, not soft-hard-soft, correct?

A. Yes.

Q. Now, if we go a little bit further down, there's some discussion of differences, differences related to -- between the two materials.

Do you see that in the bottom?

A. Yes.

Q. For example, Zendura FLX should be similar in stress relaxation but may have less force as a whole (in other words, too soft to do movements like posterior arch expansion).

Do you see that?

A. Yes.

Q. Then it goes on to say: Higher elasticity:

SmartTrack may be better in this property.

Do you see that, Dr. Li?

A. Yes.

Q. And then it goes on to say: SmartTrack should be better in patient comfort as the soft outer layer faces the tooth surface?

A. Yes.

Q. These are all identifications of differences between SmartTrack and the newly released Zendura FLX, right?

A. Yes.

Q. You weren't saying they were the same. You're identifying differences, correct?

A. Yes.

Q. Yes. That's correct?

A. Yes.

Q. Okay. Now, at some point -- at some point, you understand that the chief executive officer of Align, Joe Hogan, became very concerned about Zendura FLX.

You don't know that?

A. No.

Q. Were you here for the opening statement?

A. I was.

Q. And did you see that I showed the jury some

documents that are now in evidence about Mr. Hogan making statements about "can we hit them with some IP"?

A. I think I saw that, but I didn't really look at that --

Q. Fair enough.

A. -- e-mail.

Q. Let me put it to you this way, Dr. Li. Do you know one way or the other whether the chief executive officer of Align was trying to hit Zendura FLX with IP?

A. I'm not aware of, but the -- now you told me, yes, I'm aware of now.

Q. And do you know one way or the other whether the chief executive officer of the company of Align, Joe Hogan, wished that the asset was off the market, Zendura FLX.

Do you know one way or the other?

A. I don't -- I'm not aware. I'm just -- I'm an engineer, so I didn't hear that from Joe. So I don't know what he's thinking.

Q. Do you know one way or another whether the executive management committee at Align had identified the Bay Materials hard-soft-hard structure as a major competitive threat to SmartTrack?

Do you know one way or the other?

A. We do consider them as a competitor.

05:16 Q. You do consider Zendura FLX as a competitor, right?

05:16 A. To SmartTrack.

05:16 Q. And did you know, though, did you know that the executive management committee considered the Bay Materials hard-soft-hard structure as a major competitive threat to SmartTrack?

05:16 A. I'm not totally aware of that.

05:17 Q. Well, one thing, Dr. Li, you do know is that at some point you were asked to submit a new declaration to the Patent Office to support new patent applications to the Patent Office after Zendura FLX had been released, correct?

05:17 A. I was asked to do a continuation on SmartTrack patents.

05:17 Q. Okay. Well, let me ask you about this. If you could please turn to Tab 24 in your binder. This is DTX-84.

05:17 A. You said 24?

05:17 Q. Yes, please, ma'am, Tab 24. And take your time, and let me know when you're there.

05:17 A. Yes. I'm here.

05:17 Q. Tab 24 is DTX-84. And this is a declaration that you submitted during the prosecution of a later application after Zendura FLX had been released, right?

A. It's a '613 declaration. Yes.
Q. And that's -- it's an application that led to one of the patents at issue in this case, correct?
A. Yes.
Q. The '613, true?
A. That's a continuation patent for -- based on the SmartTrack patent.
Q. All right.
MR. MUELLER: Now, I believe DTX-84 is in evidence, but just to be ultra safe, I offer it.
MR. HUNG: No objection.
THE COURT: Admitted.
BY MR. MUELLER:
Q. And let's look at the signature page first. This is dated the 16th day of September 2019, right?
A. Yes.
Q. So we were looking at a declaration a little while ago from 2016.
Do you recall that, Dr. Li?
A. Yes.
Q. That was the declaration in which you described SmartTrack as the successful result of your experiments in that unpredictable technology, right?
A. Yes.
Q. And now we have a declaration three years

later, after Zendura from FLX was released in 2018, right?

A. Yes.

Q. And fair to say, Dr. Li, some changes were made?

A. This declaration is for '613 patent. So we tailor the declaration towards that one.

Q. Right. But just so we have the chronology, we have the first declaration in 2016, right?

A. For the original SmartTrack patent.

Q. Zendura FLX is released in 2018, true?

A. True.

Q. And then we have a new declaration in 2019, and changes were made as compared to the declaration in 2016, correct?

A. It's for the continuation applications.

MR. MUELLER: Your Honor, may I set up a placard?

THE COURT: I'm sorry. I couldn't hear you.

MR. MUELLER: I'm sorry. May I set up a placard?

THE COURT: Of course.

BY MR. MUELLER:

Q. Dr. Li, I want to walk through exactly what

the changes were as between this declaration in 2019 after Zendura FLX and the one that you submitted in 2016, okay?

A. Okay.

Q. So --

A. Can you display here? I can't see that.

MR. MUELLER: May I move this over a little bit?

THE COURT: Of course.

MR. HUNG: Your Honor, can I stand up?

THE COURT: Wherever you need to go.

BY MR. MUELLER:

Q. All right. Dr. Li, you may recall that I asked you some questions about the 2016 declaration, Paragraph 4 in particular.

Do you recall that?

A. Yeah.

Q. And this is the paragraph that had the Roman numeral III right above it, unpredictable -- not predictable, right?

A. Uh-huh.

Q. Okay. So let's go through, and what we're going to do here is take this original declaration, and then I'm going to strip off some magnets that are going to show what the language was in the next declaration

after Zendura FLX in 2019, okay?

A. Okay.

Q. All right. So first sentence: Several years ago, Align Technology set out to develop a product that could replace its single-layer thermoplastic polyurethane appliance product (referred to herein as "EX30").

That was in the original declaration, true? Is that true?

A. Yes.

Q. And it was also in the new declaration as well in 2019, right, Dr. Li?

A. Actually, it's a little bit far for me to see very clearly, but if you -- I think if you want to, I will suggest, do you have that screen here so I can see it, or if you want to do that way, that's fine. I will have to guess.

MR. MUELLER: Your Honor, if I might, could I bring it over there and bring a microphone over here so I'm closer to Dr. Li?

THE COURT: Sure. Whatever works best.

MR. MUELLER: Sure.

BY MR. MUELLER:

Q. Okay. All right. Dr. Li, I want to make sure that you have a chance to read this carefully.

The first sentence is the same, right?

A. Yes, sir.

Q. Let me now ask you about the second sentence. It says: At the time, EX30 appliances were the standard of care for orthodontic treatment; for example, Paragraph 3 of Chen -- and that was a publication by your colleague; am I right?

A. Chen is my colleague.

Q. Right.

-- describes EX30 appliances when it states that some dental appliances are made using thermoplastic polyurethane.

Right? That's what you said in 2016?

A. Yes.

Q. And you said the same in 2019.

Do you see that, Dr. Li?

A. Okay.

Q. Okay. Now, over the course of more than seven years, Align worked diligently to develop a suitable appliance that would meet various criteria for effective orthodontic treatment.

That was said in 2016, right?

A. Yeah. I think so.

Q. And that was also said in 2019. So thus far, we're the same text, fair?

A. That's fair.

Q. It goes on to say: During this development process, my team evaluated in an iterative fashion more than 250 distinct materials and/or material combinations for possible use in an improved appliance device.

That was the reference to the trial-and-error experiments in your original declaration, fair?

A. Fair.

Q. Now, here, there's one change. The word "device" is not in the 2019 declaration, but otherwise it's the same. True?

A. Okay.

Q. It goes on to say: After years of development, Align produced the SmartTrack material (also referred to herein as "ST30"), which is a product according to the instant claims comprising a layered material with a hard copolyester layer between two soft layers of thermoplastic polyurethane elastomer.

This is what was said in 2016, true?

A. For SmartTrack patent, yes.

Q. Right. And it says: Expressly after years of development, years of development, Align produced the SmartTrack, which is a product according to the instant claims comprising a layered material with a hard

copolyester layer between two soft layers, soft-hard-soft.

A. That's for SmartTrack patent, yes.

Q. Now, after Zendura's released and this new declaration is submitted in 2019, the language was changed. And instead, it said: After years of development, Align produced the SmartTrack material (also referred to herein as "ST30"), which is a product according to the current claims comprising a multilayered material with a hard polymer layer between two soft polymer layers.

Do you see that?

A. Yes.

Q. This is different text. You've eliminated words "copolyester" and "of thermoplastic polyurethane elastomer," right?

A. This is for a different application. Yes. We tailor towards that application.

Q. But you're still saying this hard layer between two soft layers, true?

A. Uh-huh. Yes.

Q. And then you continue, and the text changed again. You also said: We found that the materials with both hard and soft polymer layers according to the current claims in orthodontic appliances had

surprisingly superior properties.

Do you see that?

A. Yes.

Q. And you deleted "incorporating the SmartTrack material," right?

A. We are doing continuation with SmartTrack patents.

Q. You deleted the "modulus of elasticity," correct?

A. I see it now.

Q. And you say -- instead of "the resulting materials," referring to SmartTrack, now you say: We found that materials, the materials with both hard and soft layers according to the claims.

Do you see that?

A. Yes.

Q. Now let's continue. Here, in the original declaration, it said: Each of these properties is important for the production of appliances to apply orthodontic, teeth-moving forces in an oral environment.

Right?

A. Yes.

Q. And that was the same in the 2019 declaration, correct?

A. Yes.

Q. Now, there's a sentence here that was added. This was not in the 2016 declaration, correct?

A. Yeah. You list it here. I think it's correct.

Q. This is something you added for the 2019 declaration, right?

A. 2019's for a different application.

Q. Right. This is the declaration after Zendura FLX was released, right, Dr. Li?

A. This is for the '613 patent as continuation for SmartTrack patent.

Q. And there's an additional statement. And you said: I would expect that the presence of only two such layers, two such layers (i.e., a hard polymer layer and a soft polymer layer according to the current claims) would also provide beneficial and surprisingly superior properties of elongation, time stress-relaxation, durability, and thermoform ability.

Do you see that, Dr. Li?

A. I see that sentence.

Q. And so the original declaration had been very, very clear that there was the two soft polymer layers and the hard layer, three layers total, correct?

A. For SmartTrack patent, yes.

Q. And in 2019, you added a sentence saying: I would expect that the presence of only two -- of only two such layers would also provide beneficial and surprisingly superior properties of elongation, time stress-relaxation, durability, and thermoform ability, right, Dr. Li?

A. Yes. According to current claims, which is the copolyester and TPU elastomer.

Q. Now, Dr. Li, you had done hundreds of tests before submitting your original 2016 declaration, true?

A. True.

Q. And you had tested single-layer and double-layer and triple-layer products, right?

A. In different combinations.

Q. And you arrived at the conclusion after hundreds of experiments that the effective solution that you released as SmartTrack had three layers?

A. We released the best.

MR. MUELLER: Your Honor, may I return to the podium?

THE COURT: Of course.

A. Yeah.

THE COURT: Do you want to leave that up?

MR. MUELLER: May I leave it up there, Your Honor?

THE COURT: Sure.

BY MR. MUELLER:

Q. So if we just have the chronology straight, in 2016, you told the Patent Office that in this not-predictable field when you've done hundreds of experiments, you arrived at a solution that you called SmartTrack that had soft layers on the outside, the outer layers, and a hard layer on the inside. Three layers total, correct?

A. Correct.

Q. In the 2019 declaration after Zendura FLX, you now say, I would expect that only two layers would be successful according to the properties that mattered, right?

A. That's what that sentence said.

Q. But in fact, Dr. Li, you had done hundreds of tests that had shown two-layer products were unsuccessful time after time after time, according to your own criteria, right?

A. I -- I don't think that's right.

Q. Dr. Li, you had listed in your spreadsheet reasons to reject single-layer and two-layer configurations over and over and over and over again, true?

A. True, but we picked the best.

Q. You picked the best?
A. There's --
THE COURT: Doctor, I'm sorry. Just answer his question.
A. Yes. We pick the best.
THE COURT: Just answer his question. I'm not going to ask you to do that again. Do you understand?
THE WITNESS: Thank you.
BY MR. MUELLER:
Q. What you picked was a three-layer material, soft-hard-soft?
A. Yes.
Q. And, Dr. Li, one way you could have told the Patent Office the full story here is rather than saying, I would expect two layers to work, you could have provided all the tests you'd done on two layers to show exactly what you found, right?
A. I don't normally supply the Patent Office with raw data.
Q. Dr. Li, did you or did you not provide the experimental data that you had conducted on two-layer configurations?
A. Not raw data.
Q. Did you or did you not provide the Patent

Office with the experimental data that you had conducted on single-layer configurations?

A. Yes.

Q. Did you or did you not provide that full spreadsheet of information that you had compiled reflecting your hundreds of experiments?

A. No.

Q. What you did instead was you added a sentence saying, I would expect success for a two-layer construction, right?

A. Yes.

Q. After previously telling the Patent Office three years before that this field is not predictable, right?

A. Yes.

Q. And you had done hundreds of experiments to see what worked and what didn't, and you didn't provide the Patent Office with that data, true?

A. True.

Q. Now, these patents, the patents in this case, which were all based on applications filed after Zendura FLX, right?

A. That's a continuation after 2018.

Q. After you submitted this new declaration to the Patent Office, true?

A. Yes.

Q. Without providing any of your test data to the Patent Office, right?

A. No additional testing.

Q. You did not provide your testing spreadsheets to the Patent Office, correct?

A. Correct.

Q. And one other thing you did not provide to the Patent Office, you never told the Patent Office the infringement theories that Align was going to bring in this case, correct?

A. I don't know what you're trying to ask me.

Q. I want to be very clear. There was no request to the Patent Office. You never said in any form or fashion, We believe Zendura FLX is using our technology, and we're asking you, the Patent Office, if you agree.

That never happened?

A. I'm not part of that process.

Q. In your declaration and as far as you know, Align as a company never told the Patent Office that it planned to use these new patents to go after Zendura FLX. That just never happened?

MR. HUNG: Objection, Your Honor. Foundation. Speculation.

THE COURT: Overruled.

MR. MUELLER: As far as Dr. Li --

THE COURT: Overruled.

BY MR. MUELLER:

Q. As far as you know, Dr. Li, neither you nor anyone from Align, as far as you know, went to the Patent Office and said, We plan to use these new applications, if they issue, to go after Zendura FLX. That never happened?

A. I'm not part of that process.

Q. So again, Dr. Li, as far as you know, that never happened, true?

A. I don't know.

MR. MUELLER: Thank you, Dr. Li. I have no further questions.

Pass the witness, Your Honor.

REDIRECT EXAMINATION

BY MR. HUNG:

Q. Dr. Li, do you do your taxes every year?

A. I do.

Q. Do you file the same tax form with the same information every year?

A. Of course not.

Q. You update it, right?

A. Of course.

Q. Now, let's look at DTX-72.

MR. HUNG: Can you pull up DTX-72, and let's go to claims. Last page.

And if there's a way to put those claims side by side with JTX-2 so we can show the jury whether the claims were the same relating to the two applications.

And if we could blow up on the -- one page more on the left. If we can pull up Claim 1 in each.

BY MR. HUNG:

Q. Let's look at those two claims together, Dr. Li. Are those claims the same?

A. They're different.

Q. When you submitted the declaration that is on that easel --

THE COURT: Counsel, I'm sorry. Up here at least we can't hear because of the feedback. Everyone needs to put their phones or whatever they're doing in airplane mode or turn them off or whatever because all we hear up here is white noise. So...

MR. HUNG: I don't think it's me, but let me --

THE COURT: Whoever it is, Kristie can't hear you, so it's a problem.

BY MR. HUNG:

Q. When you submitted that declaration up there, which claim set was it for? Was it for what you see on the left or what you see on the right?

A. I think the new one, '613.

Q. The set on the right, the '613, right?

A. Right.

Q. Had the claims changed during this period, ma'am?

A. Yes.

Q. When you wrote that last line, ma'am, and I asked you about this, were you telling the truth?

A. Yes.

MR. HUNG: If we can pull up JTX-079. The reasons to reject. If we can blow up the very top of it actually.

BY MR. HUNG:

Q. Let's just look at the top. Do the first few.

What were you rejecting as compared to, Dr. Li, when you made this table with Ms. Chen?

A. Modulus is the reason here, it says.

Q. Were you saying something was better than SmartTrack or not better than SmartTrack? Why did you create this table?

A. We create data to compare the other materials

to SmartTrack.

Q. To see whether they were as good as SmartTrack?

A. Yes.

Q. So what does "reason to reject" mean in that column, ma'am?

A. That means the modulus is too high or too low compared to SmartTrack.

Q. Were you saying that you didn't think that these materials were good?

A. No.

MR. HUNG: Nothing further.

CROSS-EXAMINATION

BY MR. MUELLER:

Q. Well, Dr. Li, one thing you could have done is give this to the Patient Office and provide your explanation of the spreadsheet and this data, right?

A. I wasn't -- I haven't submit data like this to Patent Office in the past.

Q. This was not submitted, correct?

A. No.

MR. MUELLER: Thank you, ma'am. I have no further questions.

Your Honor, I did have a housekeeping --

MR. HUNG: Actually, I did have one

thing. Thank you for reminding me.

Can we pull up JTX-2, and let's look at the Figures 4, 5, and 7.

If we look at JTX-2, let's look at the data that we submitted for a second to the Patent Office. Let's look at Figure 4, I think.

Keep on going. First graph. There you go.

FURTHER REDIRECT EXAMINATION

BY MR. HUNG:

Q. What is Figure 5, and what do you show the world and the Patent Office when you submitted this?

A. That's the relaxation data.

MR. HUNG: Let's go to the next slide.

BY MR. HUNG:

Q. Is this data, ma'am, Figure 6?

A. This is forces, initial insertion force and at the end of the day, what happened.

Q. Did you conceal this from the world?

A. They're put into the application.

Q. Let's look at Figure 7.

What do you show the world here, ma'am?

A. Here is working range.

Q. For -- for your application?

A. Yeah. For the application.

MR. HUNG: Let's look at the next slide.

BY MR. HUNG:

Q. What do you show here, ma'am?

A. This is another biological acceptable working range and say how the forces look like.

Q. For a lower insertion force, right?

A. Right.

Q. Did you think that you needed to disclose the data that he just mentioned to the Patent Office?

A. No. I thought those are raw data. So we put together a specification and this representative data to the Patent Office.

MR. MUELLER: Thank you.

Nothing further, Your Honor.

THE COURT: Thank you, ma'am. You may step down.

THE WITNESS: Thank you.

MR. MUELLER: Just a couple of quick housekeeping exhibit issues. If I could, Your Honor, I would like to mark that board as DDX-20.2, the declaration board.

THE COURT: And why don't we take a photo of it and that way it can be used as an exhibit.

MR. MUELLER: Yes, Your Honor. Absolutely.

Also, I believe Your Honor admitted DTX-95. I didn't say the number on the record. I just want to say it now. DTX-95.

And I also offered with no objection DTX-220.

MR. HUNG: Your Honor, we understand that you are just marking the board, not moving it into evidence.

MR. MUELLER: That's correct. For a demonstrative.

THE COURT: Then I misunderstood.

MR. MUELLER: Yeah.

THE COURT: Is the board an exhibit or a demonstrative?

MR. MUELLER: Demonstrative, Your Honor.

THE COURT: Then I'm -- thank you. I thought you were -- okay.

Ladies and gentlemen of the jury, we're talking up here, treating you like you aren't here. I apologize.

All day long you've heard the lawyers ask to have an exhibit moved into evidence, which is really the only reason they have me sit up here, so I can say "admitted." And once I say it's admitted, then that means you'll have it during the course of your

deliberations.

Now, something that frustrates every jury is you'll have seen the exhibit that's behind my favorite CSO Bob, and you'll be back in the jury room and you'll say, I know we saw this, but we don't have it.

The lawyers have used this as a demonstrative to help you, but it is not in evidence. You will not have it back there. And at the end of the trial, I will give you instructions about what is evidence and what is not. But especially something like this, where there was time spent on it, I don't want one of you all frustrated, thinking you saw something and that you don't have it.

This is a demonstrative. You can consider any of the answers to questions that related to it. That is evidence. But the exhibit itself is just a demonstrative to assist you in understanding what the testimony was.

Now, that was a lot longer lecture than I meant for it to be. For seven of you, I -- have a great long trip home tonight. For the gentleman who's walking three blocks, you know, try not to sweat on your way back to your condo.

If we start tomorrow at -- I have a

hearing -- a separate hearing. I've got to take care of it. It'll take a few minutes.

If you all can be here by about 8:30 or a little after, we'll try to get started by 8:45. I have a very short Zoom hearing I have to take care of at 8:30. As soon as I'm done with that, we'll get started in here, so.

Thank you. Have a good evening, and please remember my instructions.

THE BAILIFF: All rise.

(Jury exited the courtroom.)

THE COURT: Thank you. You may be seated.

We'll start tomorrow, I assume, with the two short depos.

MR. DURST: Your Honor, may -- there's some issues with Straumann objecting on the hearsay grounds to one of their own exhibits, an internal document. We have submitted briefs to the Court on that.

THE COURT: I have a very quizzical look on their part.

MR. MUELLER: It's actually not an internal document. It's a third-party consulting report by Bing, the consulting firm. There is briefing

on that, Your Honor. We submitted, I think, late last night or early this morning.

THE COURT: And does that go with one of the two depos?

MR. DURST: It does, Your Honor.

THE COURT: And do I -- we have that? Okay. We'll look at that as soon as we break, and I'll let you know what we're going to do.

MR. DURST: Your Honor, there's also one other issue, and that is we are likely to rest tomorrow, our case-in-chief.

And this afternoon, about midday, we got a new witness disclosure from the defendants that radically changed their order of witnesses and proposed breaking up a witness into two within their own case-in-chief. We have objected to that, and we have flagged that for them.

THE COURT: Okay. Let me -- I'm sorry. Let me make sure I follow you. After you finish, they want to have a single witness who will be broken up into two --

MR. DURST: Within their own case-in-chief.

THE COURT: Okay. Before -- I'll get to you -- just one --

MR. DURST: We have objected to that, and at this moment, the status is they're thinking about whether they're really going to try to do that.

THE COURT: If you're going to finish tomorrow, does the defendant have two days worth of a trial left?

MR. MUELLER: Yes. For -- I'm sorry. I'm not sure I'm following.

THE COURT: Maybe I'm just not following.

Mr. Durst set my little heart on fire when he said that they would finish sometime tomorrow. Now, I have this trial going through the end of next week. And I find it hard to believe if they're going to finish tomorrow that it will take that long, but maybe I'm just not following.

MR. MUELLER: The reason why, Your Honor, is because they are reserving their antitrust rebuttal experts for next week.

THE COURT: So your case is going to take -- your case is going to take through the end of next week.

MR. MUELLER: Our case will --

THE COURT: Your case and their rebuttal to your case.

MR. DURST: We expect that to be the

case, Your Honor.

MR. MUELLER: I agree. I expect that we would be closing either end of Wednesday or first thing Thursday morning, one of those two.

THE COURT: Okay.

MR. MUELLER: I do think that we're going to have enough witnesses to get there.

THE COURT: Well, here's my problem: The amount of time I gave you was in part based on the number of patents, and it appears to me that despite having five patents, which is fine, we're almost done with the patent case.

And so it seems to me that maybe I miscalculated on the amount of time to give when the primary amount of days is going to be taken up in your case.

MR. MUELLER: I could give perhaps a bit of a summary of what's coming. So in terms of once they rest, we would intend to call as our first witness Dr. Perryman on the patent damages issues. He's here on two categories of topics: Patent damages, antitrust -- antitrust damages.

On patent damages --

THE COURT: And is he the witness you want to split up between the patent and antitrust?

MR. MUELLER: Correct. And the reason is straightforward. Lasinski -- Mr. Lasinski, I should say, their damages expert --

THE COURT: He's a rebuttal witness on the damages, and he's a --

MR. MUELLER: Exactly. That's exactly right. So what we want to do is just call him immediately after Mr. Lasinski.

THE COURT: But I'm not somewhat following why your side needs what will turn out to be five trial days. That's 12 hours per side. It seems like a lot.

MR. MUELLER: Well, here's what will follow Dr. Perryman. After Dr. Perryman, we will have a fact witness on issues that relate to both some of the patent issues that have come up but also some of the antitrust issues from ClearCorrect. We will also have our technical expert.

THE COURT: That's right. You also have a --

MR. MUELLER: We have two technical experts on the patent issues. We have two fact witnesses in the patent issues. And then we have three or four fact witnesses on the antitrust issues. And then two more experts on the antitrust issues in the

form of Dr. Perryman Part 2 on antitrust, as well as Dr. Taylor. You've seen some references to him as well.

So there's actually quite a bit left. Then they would call two antitrust experts in rebuttal.

THE COURT: In rebuttal.

Bob, what do you think? Are you buying this?

(Laughter.)

THE COURT: Okay. Well, okay. So I'm going to say this: By next Thursday, in time to do closing arguments on Thursday, which is maybe even longer because I'll have an antitrust charge as well, we need to be done with the evidence by about 3 o'clock next Thursday so that the jury can begin deliberations on Friday.

(Off-the-record discussion.)

THE COURT: Oh, I'm sorry. Oh, that also -- okay. Oh, it's the 4th, right?

MR. DURST: Yes. That's right, Your Honor.

THE COURT: Okay. Okay. So that's good.

Wednesday -- by Wednesday at 3:00, we need to be done with evidence.

MR. MUELLER: Yes.

THE COURT: And then Thursday morning, we can -- we can do opening -- closing arguments. And I just want to get them -- I want to get the verdict before the 4th.

MR. MUELLER: Yes. Understand, Your Honor.

THE COURT: And I want them to have the whole day.

MR. DURST: And you've been very helpful with that previously during the pretrial conferences. We talked about that schedule. So we were expecting --

THE COURT: All good. All good. I'm sorry. I just -- that makes much more sense to me now. And that's fine.

MR. DURST: And, Your Honor, we do -- with respect to Mr. Perryman --

THE COURT: I'm going to let them do the way they want. I can see he's going to be a damages expert because they don't even have to call him on the patent side. And so in my mind, he's two different witnesses.

I know he's not, but he's -- they have no burden on the one, and they do have a burden on the other. And so it seems to me that when they put him on in one case, it's a rebuttal to your case if they want

to. And they don't have to. And in the other case, it's an affirmative -- he's testifying in an affirmative manner.

So I'm going to allow them to do that.

Now, what is -- if there's some -- if there's something that makes it unfair because there's -- if there's some surprise or something that I'm not following --

MR. DURST: Your Honor, it is dramatically unfair and a huge surprise because for two weeks, including yesterday afternoon, they have repeatedly represented to us that Mr. Perryman was going once and he was going next to last in their order. And this afternoon, while we were in court --

THE COURT: So -- I'm sorry. Let me interrupt. So by next to last, that would -- he would have been --

MR. DURST: Next week.

THE COURT: He would have been next week on?

MR. DURST: On both.

THE COURT: On both.

MR. DURST: Going once and next to last.

THE COURT: How --

MR. MUELLER: Your Honor, I'd say this:

First of all, we just received in the last couple hours a shift of one of their experts from this week to next week after we have our portion of the case. That's in the last couple of hours one of their experts was moved.

THE COURT: Well, here's -- here's the question: When would you put Perryman on on your case -- on their case?

MR. MUELLER: We'll put him first. I think he'll probably be on for a half hour, 20 minutes. He's a rebuttal to Mr. Lasinski only.

THE COURT: I've not bifurcated the case in a way that makes it one or the other.

Here's how I'm going to split the baby. If you -- if the defendant wants to put Perryman on at two different times because it's two different cases, I'm going to allow you to do that. But you're not going to do it before next week. You can do it anytime Monday.

MR. MUELLER: That's fine.

THE COURT: You can do the rebuttal case first. It needs to be clearly rebuttal and -- or whatever the right word is. But -- and the cross will be limited to the damages -- patent damages rebuttal. And then you can put your -- him on in whatever order

you want.

Once -- even -- even if you started your case, it needs to be -- I'm okay with you separating him any way you want to.

MR. MUELLER: Thank you, Your Honor.

THE COURT: Does that help?

MR. DURST: Understood, Your Honor. Thank you.

THE COURT: Okay. Is there anything else?

MR. MUELLER: Nothing from the defendants, Your Honor. Thank you.

MR. DURST: Nothing beyond those items, Your Honor.

THE COURT: And also let me -- let me talk to -- if y'all will give me a second, let me talk to Anna about the issue on hearsay.

Is that the only issue with regard to the depos, is --

MR. DURST: It is, Your Honor.

(Off-the-record bench conference.)

THE COURT: I'm going to overrule the objection, and it can be used.

MR. DURST: Thank you, Your Honor.

THE COURT: Anything else?

05:52 MR. DURST: None here.

05:52 MR. MUELLER: No, Your Honor. Thank you.

05:52 THE BAILIFF: All rise.

05:52 (Hearing adjourned.)

UNITED STATES DISTRICT COURT)
WESTERN DISTRICT OF TEXAS)

I, Kristie M. Davis, Official Court Reporter for the United States District Court, Western District of Texas, do certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

I certify that the transcript fees and format comply with those prescribed by the Court and Judicial Conference of the United States.

Certified to by me this 12th day of July 2026.

/s/ Kristie M. Davis
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05:52